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China Report

ECONOMIC AFFAIRS

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9 APRIL 1987

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NATIONAL AFFAIRS, POLICY

YALE ECONOMIST'S VISION OF CHINESE SOCIALISM

Shanghai SHIJIE JINGJI DAobao in Chinese 29 Dec 86 p 1

[Article by Shen Feiwu [3088 7378 0702]: "Reform Must Proceed in Stages"]

[Text] Price reform, interest rate reform, profits reform, asset appraisal, and wage determination constitute five steps in all-round reform. Each step takes 4 years. If things work out as hoped, a largely stable Chinese-style socialist society will be in place by the beginning of the 21st century. This prospect was put forward by Professor Fei Jing Han of Yale University, a well-known expert on developmental economics, at a recent seminar on Chinese economic reform at Auden Villa in New York.

Professor Fei Jing Han described as a reform blueprint the 1984 resolution by the CPC Central Committee calling for all-round economic reform to build socialism with Chinese characteristics. He was one of five academics who drew up the plan for Taiwan's economic takeoff and is deeply interested in Chinese economic reform. He has come up with the most straightforward working float chart for China's transition to Chinese-style socialism and emphasizes that reform can logically follow this sequence: From 1979 up to now, China has been in the initial reform stage during which the biggest breakthrough was the revival of a monetary economy all over the nation. The period from 1986 to 1998 will be an intermediate stage characterized by the formation of a full-blown commodity market. The latter stage of reform will last from 1998 to 2006 when funds, stock, and labor markets will be decontrolled. The intermediate stage can be divided into three separate stages to take up price reform, interest rate reform, and profits reform respectively. Together with capital assessment and wage determination, they comprise the five stages of all-round reform. A largely stable Chinese-style socialist society will be one oriented toward the market in which party, government, and enterprises are separate from one another. It will be a pluralistic society where the highest policy-making echelon consists of a three-level structure staffed by administrative officials, intellectuals, and non-bureaucratic entrepreneurs. It will also be a reunified society based on traditional Chinese culture. The entire reform process spanning the period from 1978 to 2006 is actually a transition from a totally politicized economic system to a nonpolitical economic system where politicians only control the economy indirectly.

Fei Jing Han believes that reform must proceed simultaneously at the economic, cultural, legal, and other fronts, and must take place in stages, step by step. One possible sequence is this: price reform -- profit reform -- wage reform. Moreover, there must be cultural reform to reconcile the public value system to the market-oriented economic system of the future. Accordingly, the revival of a host of values such as independence, self-confidence, and trustworthiness, is not only an inseparable part of reform but also a key to its success. For all these reasons, reform must be incremental. We must not imagine that there exists a single piece of reform which leads to successful reform overall. Structural reform must be accompanied by changes in the people's psychology and value system. If we do not understand this point, reform may be stalled because of a lack of patience. Or we may act too rashly and all our earlier efforts will come to naught.

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CSO: 4006/426

NATIONAL AFFAIRS, POLICY

ECONOMIST PROPOSES DISCUSSION ON COMMODITY ECONOMY

Shanghai SHIJIE JINGJI DAobao in Chinese 23 Feb 87 p 1

[Article by Li Jiagao [2621 1367 6964]: "A Critical Choice After Eight Years of Reform"]

[Text] Economist Wu Jinglian [0702 2417 8834] proposed to this paper's reporters the other day that there should be a discussion on the understanding of the commodity economy. He believes that 8 years after it began restructuring its economic system, China faces a critical choice: build a modern commodity economy or extend the primitive commodity economy. We should have a systematic reflection on and in-depth discussion about this matter.

In Wu Jinglian's opinion, the key question now is what basic philosophy we should choose for the restructuring of the national economic system. Only by understanding clearly the series of issues related to the underlying reform philosophy can we correctly judge the merits and demerits of specific reform measures. No conclusive answers emerged from the debate some time ago in the theoretical community over many issues precisely because we failed to make a clear choice regarding the overall reform philosophy.

There are basically two reform philosophies today: one, establish a modern commodity economy and mobilize the energy of socialist production to propel the entire national economy from a "dual economy" in the direction of a modern economy; and two, free the national economy from the straitjacket of the old command economy by deregulating the small economy and force it to change into a commodity economy.

In Wu Jinglian's analysis, China's reform in the earlier period by and large adhered to the second philosophy. For example, a policy of deregulation was initiated in the countryside, the prices of agricultural products were increased, and a system of family contracted responsibility was introduced. In the cities, administration was simplified, powers were decentralized, taxes were cut, and enterprises were allowed to keep their profits. These reforms have effectively spurred the growth of commodity monetary relations and enlivened both urban and rural economies. But this approach has also created a series of problems such as a small market, irregular behavior, conflicts between competition, traditional relations of subordination, and privilege, and economic assaults on large enterprises and industries. The old system is

crumbling in many ways, but new economic mechanisms have not been applied effectively with the result that the economic system cannot function properly as a whole. Consequently, competition has arisen between industry and agriculture, between urban and rural areas, between localities, and between trades, to see which can chalk up higher earnings. As prices spiral, so do the profits retained, leading to financial difficulties. Which road we should embark upon, therefore, is a question worthy of our deep consideration.

Wu Jinglian said that 8 years of economic reform have given us new economic conditions and enabled us to see clearly the practical economic implications of various theoretical arguments. Even today some people advocate returning, either temporarily or for good, to an "improved command economy" centered on command planning. Others go so far as to doubt whether or not China really needs to create a commodity economy. If we grab the opportunity right now to engage in a thorough discussion, we would do much to clarify our theoretical understanding and reform direction, and enable reform to go deeper.

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NATIONAL AFFAIRS, POLICY

PLANNING SYSTEM REFORM DISCUSSED

Shanghai SHIJIE JINGJI DAobao in Chinese 8 Dec 86 p 14

[Article by Liao Jili [1675 1323 4539]: "Commodity Economy is the Core of a Planned Economy"]

[Text] As a socialist nation, we must equip ourselves with two kinds of consciousness when we develop productive forces: one, the consciousness to apply the law of value, and two, the consciousness to use the law of planned proportion, and combine the two organically. The result will be none other than an economic system with Chinese characteristics.

Owing to objective reasons, we have not applied these two laws properly thus far, not to mention integrating them organically.

The failure to apply the law of value satisfactorily mainly manifests itself in these ways:

- instead of orienting production to the market, we orient it toward plans drawn up by administrative agencies. Production is divorced from the market. As a result, what is produced is not what the market wants and production and sale have nothing to do with each other.
- key means of production and consumer goods are not treated as commodities. Instead they are allocated and distributed through planning and are rationed.
- funds have no prices and can be used for free.
- enterprises lack independent production and managerial powers, their legitimate interests not recognized. Consequently they have become the subsidiaries of administrative agencies.

The failure to apply the law of planned proportion primarily manifests itself in these ways:

- the development of heavy industry is favored, while the growth of agriculture and light industry is stunted, leading to a mismatch between the two.
- the disequilibrium between fast growth and high accumulation. Fast growth must be sustained by high accumulation, which, in turn, must be buttressed by fast growth. But the production cycle is short while the construction cycle is long. The former does not satisfy the latter's needs, nor can the latter do likewise for the former. Hence a perpetual state of imbalance.
- planning is emphasized as the law and market activities are disallowed,

depriving economic life of vitality and energy. In times of imbalance, the government resorts to curbing necessary demand and to over-distribution as a way out.

The inevitable consequences of such a system are material shortages, inflation (hidden), and economic fossilization.

The key to the restructuring of the economic system at present lies with reforming the planning system. And reforming the planning reform means essentially adapting it to the development of a commodity economy. Some comrades think that to create a planned commodity economy, we must steer the commodity economy into the orbit of planning and subordinate it to the demands of planning, instead of the other way round. They are mistaken. Economic planning exists under both socialism and communism; it is common to both. Nevertheless, one planned economy differs from another in contents and form, depending on the countries involved, on the stage of development, and on circumstances. This is the specificity of planning. At the present stage, what we are developing is neither a natural economy nor a product economy, but a commodity economy. It follows that the core of a planned economy is the commodity economy, nothing more, nothing less. Since the goal of restructuring the economic system is to develop a commodity economy, reforming the planning system, too, aims to create an environment and pave the way for a commodity economy. Why is management by planning and target becoming less and less effective these days? Primarily because it has deviated from the commodity economy. Certainly, developing the commodity economy haphazardly without any planning also violates objective demands and will not work either.

How is the change to be brought about? In my opinion, management by planning must be oriented toward the market from now on, and enterprises must operate on the market economically too so that the two can be integrated. To put it graphically, we want their relations to be like those between a "cage and birds," or a "pasture and a flock of sheep." Planning is a "cage" or "pasture," not a "rope" or "chain." It provides a good arena for the economic activities of enterprises, while regulating and controlling them. Enterprises are lively, energetic animals, not some prey tied up with a piece of rope. With their intrinsic vitality and energy, they should steadily raise productivity, improve operations, and adapt to the market adeptly. In this way planning and enterprises can be integrated, forming a new planned economy. Specifically,

1. The national government should be a unifying force, subordinate units should be invigorated through decentralization, and there should be a layered planning and policy-making structure.

Microeconomically speaking, the present policy-making system is over-centralized. Macroeconomically, it is too defused. In this fragmented state, enterprises have no decision-making power. To put an end to this state of affairs, we must adopt a layered policy-making system under which the national government oversees the entire economy while giving enterprises enough authority to be invigorated.

-- Microeconomic policy-making system. To affirm the status of enterprises as legal persons, we must make sure their production and managerial powers are not a favor granted by the higher authorities, but are legally protected. The decision-making authority of an enterprise can be summed up as three kinds of power: first, the power to organize production, supply, and marketing, to deploy human, financial, and material resources, and to develop products in accordance with social and market needs and within limits defined by the state, laws, and regulations; second, the power to carry out technical transformation and expanded reproduction provided it pays taxes, hands in profits, and defrays other charges; and third, the power to choose and decide its wage and personnel systems.

-- Macroeconomic policy-making system. National agencies in charge of the economy should make general policies regarding these matters: the strategic objectives of development, major strategic principles, the balance between total social demand and total supply, the handling of key proportionate relations, and the balancing and coordination between finance, credit, foreign exchange, and key materials. No longer will national planning be the direct allocation of investments and materials level upon level. In addition, the policy-making process will be scientific and democratic, complete with legal guarantees.

-- Intermediate coordinating system. Interposed between the macroeconomic and microeconomic systems, this system has dual mechanisms. Microeconomically, it coordinates and balances the economic activities of different enterprises in accordance with macroeconomic policies. It also takes part in policy-making at the macroeconomic level based on the economic activities of enterprises. Moreover, it is its job to enforce macroeconomic policies.

When the three policy-making systems are in place, 5-year plans and long-range plans will be formulated by the State Council and, upon approval by the National People's Congress, will be carried out through policies, economic levers, and the legal system. Annual plans and short-range economic activities will be drawn up and implemented by enterprises in accordance with national demands and market conditions. Foreign economic intercourse will be conducted through vertical and horizontal channels with the conclusion of contracts. It must be pointed out, however, that macroeconomic policy-making must be a good balancing act, otherwise the entire economy will slip into chaos. When that comes to pass, even sound microeconomic policies and methods would be useless. The intermediate coordinating system absolutely must not become an administrative and policy-making level, which will only intensify fragmentation and encourage separatism. A unified market cannot emerge under these circumstances. It is right and proper to delimit the powers and interests of the central government and local authorities. It is also right and proper to hand over to local authorities matters outside the jurisdiction of the central government. Be that as it may, to allow local authorities to take overall charge is to introduce a new kind of fusion between government and business, which is no permanent solution. In short, only by correctly handling the relations among the three kinds of policy-making can we unify the socialist commodity economy without controlling it to death and divide powers without creating chaos.

2. Managing the Economy Requires Science, Policies, and the Legal System

To meet the needs of economic development after the three policy-making

systems are set up, the state must manage the market through science, policies, and the legal system. A lot of ground is involved here, such as policies pertaining to production, industry, technology, education, investment, consumption, fiscal and financial matters, pricing, wages, and social welfare. This style of management is more scientific than management by targets. For one thing, it ensures state control over all economic activities and market behavior. It also ensures the legal-person status of enterprises and helps them self-transform and self-develop. For another, it is highly stable and adaptable, changing as economic activities change. In times like these when economic life changes radically and rapidly, it is particularly unworkable to depend on a set of fixed annual planned targets to manage the economy. Third, it will significantly simplify the administrative machinery and reduce the number of personnel to convert government organs which are actually providing rear services today into agencies to take charge of planning, policies, major technologies, the legal system, and regulatory mechanisms. In the process, the agencies can make themselves useful and improve their efficiency. Needless to say, policies must be scientific. There must not be a multitude of policy-making agencies duplicating one another. Nor should policies be altered constantly. The shift from management by target must go through a certain process and be preceded by pilot projects before formal adoption.

3. Economic Levers are the Main Tools to Regulate the Regulatory

In a certain sense, the application of economic levers is the expression of a scientific policy. In the past, we followed planned management and relied on direct administrative intervention. Scientific policy-making and management, on the other hand, relies on regulation by economic levers. There are fewer economic levers than planning targets, but the former exceed the latter in coverage and depth. Since economic levers are closely related to the economic interests of all parties, to change economic levers in effect means regulating the interest relations of every party. In a socialist society, the concern of enterprises and workers for their own personal interests remains a prime driving force behind economic development. If the state consciously applies economic levers, that would help enterprises and laborers respond sensitively, thus steering enterprises onto the path of macroeconomic planning. Let's say we oversaw 80,000 state-owned enterprises in the past and appraised each of them by 12 targets (actually much higher because of the numerous products involved.) Administrative agencies at all levels had to hand out one million targets, but there were still complaints about "incomplete, hasty, and superficial" control. The use of economic levers, on the other hand, does a more comprehensive and better job than tens of thousands of economic targets. This is because in contrast to the rope and chain used in the past, we now use a cage and pasture method. Certainly there are occasions when administrative tools must be applied if required, but they no longer play the leading role.

To sum up, the new planning system works this way: the macroeconomic policies of the state will be realized through planning. Such planning will primarily be concerned with pointing up a direction for economic development and balancing major proportionate relations, not direct intervention in enterprises, which will operate actively on their own. The state regulates the economy through sciences, policies, the legal system, and economic levers. The socialist market is where the macroeconomy unites with the microeconomy.

Briefly then this is the model for a new planned economy where the state regulates the market and where enterprises are oriented toward the market.

ECONOMIC STATISTICS

BRIEFS

ECONOMIC STATISTICS RELEASED--The Provincial Statistics Bureau released a communique on 26 February on Sichuan's economic and social development in 1986. The province's economy recorded sustained development during the year. Calculated according to current prices, total social output value was 115.8 billion yuan, and national income was 53.7 billion yuan. Both of these figures showed increases of more than 7 percent over the previous year. Total industrial and agricultural output value was 82.17 billion yuan, an increase of 8.2 percent over 1985. This overfulfilled the plan target. Grain output was 39,216,000 tons, an increase of 2.4 percent over 1985. Urban and rural living standards continued to improve. According to simple surveys, the average net peasant income was 337 yuan, a rise of 5.1 percent over 1985. Average real income of urban residents rose by 16.4 percent. [Text] [Chengdu Sichuan Provincial Service in Mandarin 2300 GMT 27 Feb 87 HK] /12913

CSO: 4006/439

FOREIGN TRADE, INVESTMENT

SHANGHAI INVITES FOREIGN BIDS FOR SEWAGE PROJECT

OW030942 Beijing XINHUA in English 0929 GMT 3 Mar 87

[Text] Shanghai, 3 Mar (XINHUA)—Shanghai's sewage system project, one of China's largest municipal construction projects, has invited international bids, with over 70 foreign and Hong Kong firms showing interest.

Jin Bogen, vice president of Shanghai Corporation for Foreign Economic and Technological Cooperation said today, his corporation had been commissioned by Shanghai Sewage System Project Construction Company to invite firms from Hong Kong, Macao and foreign countries to take part in the bidding for work on the project.

The project will be listed as one of five major municipal construction projects during the Seventh Five-Year Plan period (1986-1990).

Jin said, "The project aims to divert sewage from flowing into urban districts, redirecting it to sewage treatment plants, and discharging treated waste into coastal waters."

"After 3 years of feasibility studies, Australian specialists have completed the initial plans for implementing the project," Jin said, adding the state has approved the design and the World Bank has accepted the appraisal and has issued loans.

He said, "Over 70 firms from the United States, Britain, France, the Federal Republic of Germany, Italy, Japan, Hungary and Hong Kong will take part in the bidding."

Shanghai's daily sewage volume totals 4.9 million cubic meters, of which 80 percent is industrial waste. In the past, poor sanitation facilities have been a health hazard, so the municipal government is taking the project as an extremely urgent task.

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CSO: 4020/139

FOREIGN TRADE, INVESTMENT

BRIEFS

SHENZHEN ATTRACTING FOREIGN CAPITAL--Shenzhen, 10 Mar (XINHUA)--Statistics show that the Shenzhen Special Economic Zone used a record U.S.\$489 million in foreign capital in 1986. According to the city's statistics bureau, the figure forms one-third of the total actual foreign investment in the zone since it was set up 7 years ago. Investment by Japanese businessmen increased considerably in the past year, their total ranking second after Hong Kong. Japanese businesses signed 28 contracts last year involving U.S.\$87.9 million, four and a half times the figure for 1985. At the same time, U.S.\$318 million of foreign investment, 76.8 percent of the total, were poured into export-oriented industrial enterprises, compared with 58.2 percent in 1985. The local government also emphasized products for export in choosing applicants. According to the bureau, most of the 172 newly approved industrial projects can export more than 70 percent of their output. Some projects involving high technology were also approved. Investment came from 15 foreign countries and regions last year, compared with only seven in 1985. [Text] [Beijing XINHUA in English 1445 GMT 10 Mar 87] /9604

NEI MONGGOL BOOSTS EXPORTS--Hohhot, 30 Jan (XINHUA)--The Inner Mongolia Autonomous Region in north China has set up seven export-oriented production bases this year, according to a recent issue of INNER MONGOLIA DAILY. These bases mainly produce soybeans, buckwheat, camel hair, white goat wool, antlers, rabbits and cattle, an official of the regional foreign trade department told the local paper. Starting this year, the region will focus on using foreign funds to import equipment for its woollen textile and leather processing, dairy products and animal food. It will expand Sino-Soviet border trade and open businesses abroad such as labor service, construction, processing supplied materials and compensation trade while extending cooperation with other parts of the country to improve the quality of textiles. According to the official, Inner Mongolia exported goods worth U.S.\$147 million last year, up 34 percent over 1985, and absorbed U.S.\$42 million of foreign funds in the forms of joint ventures, compensation trade, leasing, foreign government loans and international aid. [Text] [Beijing XINHUA in English 1237 GMT 30 Jan 87] /9604

TIANJIN JOINT VENTURES—Beijing, 4 Feb (XINHUA)—In Tianjin's Sino-foreign joint ventures, export income led import spending by U.S.\$1.78 million last year, XINHUA has learned. Of the 71 ventures now in operation, 11 recorded profits of more than one million yuan (U.S.\$270,000), showing an average interest rate of 33 percent on the initial investments. From 1979 to 1986, Tianjin signed contracts for 187 joint ventures including computerized telephone exchanges, printing and dyeing factories, elevators, fish food processing plants and other enterprises with investors from Hong Kong, the United States, France and Japan. To attract more investors, the city is now organizing a foreign investment service center, labor service company, labor insurance company, labor arbitration committee, supply service company, and an investment guidebook will be published later this year. [Text] [Beijing XINHUA in English 0716 GMT 4 Feb 87] /9604

HENAN REGULATIONS ON FOREIGN INVESTMENT--Zhengzhou, 13 Mar (XINHUA)--As in many other parts of the country, foreign investors in central China's Henan Province now enjoy preferential terms in taxes, land use and loan extension. Under a set of new regulations issued by the provincial authorities Tuesday, all foreign-funded enterprises--Sino-foreign joint ventures, co-management businesses and enterprises with sole foreign investment--are exempt from the local income tax. The regulations for the encouragement of foreign investment say: "Export-oriented and technologically advanced enterprises involving foreign investment will be exempted from land-use fees within 3 years after going into operation. [no end quotation marks as received] Furthermore, foreign-funded businesses will enjoy priority in acquiring short-term working funds and other necessary credit funds from banks. Foreign employees in these businesses, as well as their dependents, will pay travel, lodging and food bills at the same rates as Chinese residents, according to the regulations, which went into effect 10 March. Henan now has 39 foreign-funded enterprises, manufacturing biological products, fodder, foodstuffs and furniture. It has introduced U.S.\$1.71 million in foreign funds since 1981. The provincial authorities hope to cooperate with foreign firms in such areas as coking coal, petrochemicals, nonferrous metals, building materials and food processing, a provincial official said. Since 1978, the province has spent U.S.\$830 million importing 518 items of technology to upgrade its existing industrial firms, he added. [Text] [Beijing XINHUA in English 1504 GMT 12 Mar 87] /9604

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ECONOMIC ZONES

JIANGSU'S NANTONG BECOMING 'MAJOR TRADE CENTER'

HK120642 Beijing CHINA DAILY in English 12 Mar 87 p 2

[Article by staff reporter Da Chansong]

[Text] Nantong, one of the leading ports in eastern China, is seeking more foreign funds and speeding up construction to turn the city into a major trade center.

Ranking sixth after Shanghai, Guangzhou Tianjin, Dalian and Qingdao, the city has built 30 Sino-foreign joint ventures with a total investment of 83 million, one third of which was contributed by foreign investors.

It has also signed 180 contracts with their counterparts in other countries to introduce advanced technology.

Twenty-six of the 30 joint ventures are manufacturing enterprises developed from old ones.

"The practice saves investment funds and brings a quick turnover," Vice Secretary General of Nantong People's Government, Lu Chunkang told CHINA DAILY. The 180 signed contracts were worth 110 million, and an investment of one dollar could earn about 1.1 foreign currency, Lu noted.

Now there are more than 400 export-oriented factories, selling about 9,000 products to some 100 countries and regions. About 70 percent of the export commodities are industrial products and 60 percent are daily necessities.

Last year, over 2 million in foreign currency were gained from the city's two overseas factories, one, a knitting mill in Barbados, the other a textile mill in Britain.

A set of the city's imported textile equipment is now contributing 72 percent of its total annual industrial output value. About 100 textile products are sold in more than 60 countries and regions, including the United States, Britain, Canada, Japan and some West European and Asian countries.

Milling equipment built in the city's Machinery Plant had found a ready market in 23 countries, accounting for one third of China's entire exports to the United States. The city can also supply 90 percent of electronic spare parts for its chemical and textile industries.

The newly established Natong branch of China United Airlines has opened its first air route between Nantong and Beijing, and routes to other major cities such as Shanghai, Nanjing, Guangzhou and Hangzhou will soon be started.

/9604

CSO: 4020/139

ECONOMIC ZONES

BRIEFS

SHANGHAI EZ ATTRACTS FOREIGN FUNDS--Shanghai, 4 Mar (XINHUA)--Shanghai's Minhang Economic Zone has 16 Sino-foreign joint ventures and solely owned foreign enterprises that have investments of U.S.\$30 million. Minhang Economic Zone west of Shanghai is the closest industrial developing zone to the municipality. Buildings of over 150,000 square meters have been set up for foreign services. Businessmen from the United States, Japan, Denmark, the Federal Republic of Germany and Hong Kong have set up dozens of enterprises in the zone. The projects put into production have gained good economic results. Shanghai Globe Toy Company, the first joint venture in the zone, produced 14.5 million toy vehicles last year, of which 90 percent had been sold abroad, bringing in profits of 1.5 million yuan. This company will make back its original investment in 3 years. [Text] [Beijing XINHUA in English 0156 GMT 4 Mar 87] /9604

CSO: 4020/139

INDUSTRY

STRATEGY TO PROMOTE MACHINE TOOL INDUSTRY

Beijing JICHUANG [MACHINE TOOLS] in Chinese No 1, 1987 pp 4-7, 19

[Article by Liang Xunxuan [2733 6064 8830], member of the National Commission on Machine Industry and Director of the Bureau of Machine Tool Industry: "Strategies and Policies for Promoting the Machine Tool Industry"]

[Text] Editor's note: The present article is a report given at the 35th anniversary meeting of the Chinese Society of Mechanical Engineering. Starting from the macroeconomic effects created by the inability of China's machine tool industry to meet the demand for manufacture of machinery, the article discusses the importance and urgency of promoting the machine tool industry, proposes a strategic policy for promoting the industry, and describes the strategic measures for implementing this policy. The author supplemented the article's content prior to its publication. This is an important article with strong implications for policy, and we hope it will receive wide-ranging attention.

Importance and Urgency of Promoting China's Machine Tool Industry as Seen from its Macroeconomic Effects on Machine Manufacturing

The level of production technology of the various sectors of the national economy and the actual strength of our national defense are to a great extent determined by the levels of the technical equipment provided by the machine industry, and the level of the technical equipment provided by the machine industry is to a great extent determined by the levels of the working machine tools. It is this characteristic that has determined the strategic status and key role of the machine tool industry in the national economy as a whole.

During the First and Second 5-Year Plans, China's machine tool industry, through the deep concern shown by the Central Committee and the State Council, was provided with critical assurances in such areas as construction investment and imported technology; backbone factories were established to lay a foundation for developing China's machine tool industry. In order to break through the blockade of the early 1960's and meet the demand for production of highly sophisticated defense products, the central government organized a leadership group for the development of precision machine tools, made up of key officials of the planning, construction, and science commissions, which appropriately reinforced the measures being taken. In just four or five years,

26 of the 46 key precision machine tools on the international market at the time had been successfully developed, which spurred on the development of the entire industry and brought the technology of China's machine tool industry close to the levels of Japan, Italy and Great Britain at that time, and began to meet the urgent needs of the defense industry. In the early 1970's, relying on its own accumulated technology, it provided 98 percent of the 1960's equipment to establish the China No. 2 Automotive Works, and nearly 80 percent of the equipment's value.

However, during the "Great Leap Forward," production plans for ordinary machine tools began to get out of control, and this was exacerbated during the 10 years of chaos of the Cultural Revolution; this led to a great increase in the number of machine tools, which gave people the mistaken impression that China's machine tool industry was overproducing and thus concealed the contradiction of the industry's technological backwardness and caused the needed technological upgrading to be slackened and the pace of technological development to be slowed. Taking just investment in technological upgrading and capital construction in the machine tool industry as an example, total investment during the Fifth 5-Year Plan was only one-half that during the First and Second 5-Year Plans; the proportion of investment in the civilian part of the machine tool industry also declined, from 11.24 percent to 6.9 percent.

Since the Third Plenary Session of the Eleventh Party Congress, the machine tool industry, guided by the policy of "invigorating the domestic economy and opening to the outside," has undergone considerable development in importing technology and cooperating in production with foreign countries; design, technique, research, and product quality have also improved substantially, and a few new products at the technological levels of the 1970's and 1980's have been developed; 48 enterprises and businesses have been included in the state's plans for key technological upgrading. However, many years of bad practices have kept the situation of technological backwardness from being fundamentally corrected, and it has not been possible in a short period of time to achieve clear improvement in basic material conditions. As for product levels, annual output has reached 130,000 machines, putting China among world leaders, but about 90 percent of the annual output is still backward products of the 1950's and 1960's. As for enterprise outfitting, in 1983 the net value of the machine tool industry's equipment as a percentage of its original value had declined to 54 percent, even lower than the 61.3 percent average for the machine industry. Of the 32 mainstay machine enterprises having a net value of equipment as percentage of original value lower than 40 percent, one-third were machine tool enterprises. The net value of the equipment of the Shanghai Machine Tool Works, a mainstay enterprise producing precision machine tools, was only 26.8 percent; the net value of the equipment of the Shanghai Tool Works, one of the four mainstay tool plants, was only 17 percent. In terms of enterprise quality, of the country's 937 machine tool enterprises, only around 10 percent are capable of developing new products; virtually all of them repetitively produce ordinary products.

In short, China's machine tool industry is characterized by substantial production capacity but low-grade products, a large force of enterprises but poor enterprise quality.

The technological backwardness of the machine tool industry's production has already affected the growth of the national economy. This is manifested specifically in the following areas:

1. Reliance on technological progress for carrying out the strategic program for quadrupling output has been hindered. From 1970 to 1980, the output value of China's machine industry rose 202 percent, doubling in 10 years, which ought to indicate rapid growth. However, during the same period the number of machine tools owned by the machine industry increased 204 percent, which means that the increase in output value was achieved basically by adding more equipment; it also means that the equipment provided by the machine tool industry to the machine industry underwent no improvement in technological level during the same period. By analogy, if we attempt to achieve the goal of quadrupling output by relying solely on a simultaneous increase in the number of machine tools, the results will be disastrous. The number of machine tools in China has now reached more than three million, putting China in second place, ahead of industrially developed countries such as the United States, Japan, and West Germany. In 1978 the number of machine tools in the United States had declined by 14 percent from 1973, and by 1983 there had been a further reduction of 8 percent from 1978, but the U.S. machine industry maintained its previous rate of growth. The number of machine tools in China certainly cannot continue to grow out of control; although the way to get at the root of the problem involves the outfitting policy of the machine manufacturing industry and the program for equipment investment and renewal, the main approach should still begin with turning around the backwardness of the machine tool industry.

2. Improvement of the economic benefits of machine manufacturing has been severely impacted. The economic benefits of machine manufacturing in China are not very high; there are many reasons for this, one important one being the backwardness of the equipment. The output value produced per machine tool in the United States, Japan, and West Germany is 10 or 12 times greater than China's. In China, ordinary, low-efficiency machine tools account for 43.2 percent of the total (only 9 percent in the United States), automatic machine tools account for 4 percent (20 percent in the U.S.), numerical-control machine tools account for 0.24 percent (over 5 percent in the U.S.), and finishing grinders account for only 10 percent (22 percent in the U.S.). Moreover, in the last 10 years in China the output of ordinary lathes has accounted for about 50 percent of the total output value of machine tools. This means that the composition of annual output is one that continues to aggravate the situation as regards the number of machine tools in China. This trend is cause for concern. Furthermore, in terms of cutting efficiency, that achieved by China's machine tools and tool matching, including lathing, milling, grinding, drilling, and broaching, corresponds only to one-half that of average foreign advanced levels. Even the production efficiency of all types of machine manufacturing has been affected, making it very difficult to improve economic benefits.

3. The low quality and performance of working machine tools affects the manufacturing quality of the machine industry. Approximately two-thirds (about two million machines) of the machine tools in China are shoddily manufactured

pieces from the time of the "Great Leap Forward" and the Cultural Revolution; both their quality and performances are inferior. These machine tools are scattered all over the country and have a very broad impact. In addition, since it has not been possible to undertake the necessary prompt technical renewal of the equipment of the machine tool industry itself, improvements in product design technology and manufacturing techniques have been very slow; generally speaking, the precision and performance of the machine tool industry's products have been more or less below advanced foreign levels for the same types of contemporary machinery, and this has had a direct impact on the manufacturing quality and results of the sectors using that equipment. For example, the automotive industry requires many modular machine tools, and light industry always needs die-finishing machine tools; their inadequate precision has long constituted an obstacle for their users in improving the quality of their products.

4. The industry is far from able to meet the demands of the accelerated technological progress and product makeover and upgrading of the civilian and military machine industry. In the last few years, there has been rapid product makeover in aviation, power stations, automobiles, light industry, electronics and other industries; moreover, many product technologies of the 1970's and 1980's have been imported, and hence there has been a need for matching processing equipment. Since we are unable to provide suitable machine tools, we have to spend more foreign exchange to import them, otherwise we cannot run tests to verify the technology and create production capacity. Taking the results of verification of only the most recent projects involving installment delivery of equipment as an example, there were 185 pieces (sets) of machine tools planned for import; after a vigorous effort to find a domestic producer for them, only 4.9 percent of the total amount could be domestically produced. The demands placed by growth of the automotive industry on the machine tool industry are another example: during the Seventh 5-Year Plan, the automotive industry's production capacity will be expanded by several tens of thousands of vehicles from the current 400,000-plus vehicles; moreover, one-third of the investments in product upgrading, capital construction and technological reorganization will be switched to purchasing processing equipment, with the demand being focused on high-efficiency, high-precision, automatic, large-scale and specialized equipment. At 1984 prices, the average investment for a piece of such advanced equipment will be 80,000 yuan, whereas in 1984 the average price for a single product of the machine tool industry was only 15,000 yuan, which indicates the complexity of the technology involved. The machine tool industry provided the No. Two Automotive Works, built that year, with a set of 1960's equipment, whereas today's automotive industry has undertaken joint production with internationally known auto makers, or importing of technology, and the equipment it needs must be matched to the 1980's products it produces. This is an extremely onerous task for the machine tool industry.

The foregoing analysis shows that transforming the backwardness of the machine tool industry's production technology and promoting the industry are problems that are not limited to just one industry but rather are related to the greater problem of the economy as a whole. All of the world's industrially developed countries have reinforcement of the machine tool industry as an important national policy: Japan's first law to promote the machine industry

begins by promoting the machine tool industry; in recent years the reports of the National Research Commission have repeatedly called on the Congress and State Department to continue giving financial assistance to the U.S. machine tool industry in order to improve the entire country's productivity and strengthen national defense. In May 1985 President Reagan agreed to take measures to strengthen the competitiveness of the U.S. machine tool industry in order to ensure that the industrial foundation of national defense would not be impacted. Given China's actual situation, promotion of the machine tool industry is even more urgently needed.

Formulating Strategic Policies and Measures According to the Specific Conditions of China's Machine Tool Industry

Promotion of China's machine tool industry is a huge and complex systemic project requiring that staged, limited, fighting objectives be set, with the guiding ideology and policies being clearly defined, and that strategic measures be taken for the purpose of creating a benign cycle.

Strategic Goals

The strategic goals for promoting the machine tool industry during the Seventh 5-Year Plan should be: propelling the industry to new heights where it will be truly able to provide the civilian and military machine industry with suitable, advanced, complete technologies and equipment, opening up a new front in the machine tool industry characterized by adherence to a planned, socialist commodity economy and technological levels appropriate to the late 1970's and early 1980's. By the latter stages of the Seventh 5-Year Plan, the numerous and unspecialized machine tool products that remain at 1950's and 1960's levels should basically have been renewed and replaced; by 1990, more than 60 percent of the types of products, and more than 40 percent of the output value, of annual production should be at the levels of the late 1970's and early 1980's; improvements in the product mix should be completed in stages, with vigorous development of high-precision, high-efficiency, high-technology, mechanically and electronically integrated products, and numerical-control machine tools and processing centers should go into industrial mass production; technical difficulties with crucial types of products urgently needed for key national construction at 1980's levels (energy development, raw materials industry, communications and transport machinery, light industry, electronics, die industry) should be overcome, and production technology for the needed complementary electromechanical parts, measuring tools and instruments, tools and grinding tools should be brought along to ensure that the supply of these products can be based in China. It is not necessary for the industry's total output to rise during the Seventh 5-Year Plan, but the total value of production should double within five years on the basis of improvements in product mix.

Strategic Policy

Starting from a correct understanding of the plight of the machine tool industry and the situation it faces, and taking aim at the crucial internal and external problems, the following three guiding ideologies and policies for promoting the machine tool industry can be set:

1. Adhere to reform, and, while continuing to invigorate enterprises, reinforce and improve macrocontrol over the industry. Invigorating enterprises and providing them with the conditions for a benign cycle of self-development is the correct way to promote the machine tool industry; reinforcing and improving macrocontrol are the means of increasing enterprise vigor through external conditions and guiding enterprises onto a track suitable for national economic development. At present, reversing the backwardness of the machine tool industry urgently requires stronger overall planning to overcome the macroeconomic dispersal and waste created by attention only to local interests.

The working machine tool aspects of the machine tool industry should be stressed, and the contribution made toward improving socioeconomic benefits should be made an important indicator for evaluating enterprise performance.

It should be noted that the machine tool industry is capital- and technology-intensive, and it must gain the upper hand in equipment and personnel. It should be accorded certain preferential treatment in the corresponding policies.

The economic levers of pricing and taxation should be applied and a rational machine industry equipment policy and investment focus should be formulated to influence the direction of the machine tool industry's production and marketing, thereby correctly guiding its development of production technology and management.

2. Make serving as the "Chief Technologist" of the machine industry the purpose of all the machine tool industry's activities. Providing the suitable, advanced processing equipment and technology for the technological upgrading and progress of the machine industry is the basic mission of the machine tool industry. Therefore, it should view its duty as serving as the machine industry's "Chief Technologist," and it should make every effort to make the following switches: from providing customers with single products to being able to provide customers with good-quality, high-performance single products as well as suitable, advanced, complete sets of equipment and technology; from providing primarily unvarying product models to being able to provide advanced, universal products, and to providing made-to-order products in response to customer requests; from only meeting customer demand to positively promoting the development of customer technology, and providing technical services to customers while at the same time opening up markets, and opening up markets while at the same time better serving customers.

3. Adherence to "Winning through quality" should serve as the basic policy for promoting the machine tool industry. The reason the machine tool industry is unable to meet the nation's demands for modern construction is not insufficient output but rather low-quality products; the processing efficiency, economic returns, and even manufacturing quality that affect the various machine industries are also due not to insufficient output but foremost to the backward production technology of the machine tool industry; the gap between the machine tool industry of China and those of the world's industrially developed nations, and its inferior competitiveness on the

domestic market, are also due to backward production technology and to its inadequate capacity to meet urgent market demands, rather than to quantity.

Therefore, implementation of the policy of "Winning through quality" requires that we emphasize increasing the proportion of technologically advanced products and decreasing and cutting back on the proportion of backward products in the product mix, in order to meet the demands of modernization; in terms of industrial structure, implementation of "Winning through quality" requires that attention be paid to setting up enterprises that produce high-performance functional parts (such as numerical-control, digital-display, and advanced-drive devices), weeding out enterprises that produce duplicative, low-grade products, and improving the technical levels of all enterprises.

In terms of enterprise administrative ideology and policy making, implementation of the policy of "Winning through quality" should involve encouraging that products' technological value added be increased and more technology-intensive products be developed; while socioeconomic benefits are improved, the economic earnings of enterprises will be increased.

Strategic Measures

To achieve the strategic goal of the Seventh 5-Year Plan for the machine tool industry, we must systematically adopt various forceful measures in accordance with the strategic policy set; strategically significant measures include:

1. Prompt readjustment of the functions of the departments managing the machine tool industry. With enterprises having been decontrolled and enterprise autonomy already expanded, the problem of managing the industry has gradually come to the fore, and it is urgently necessary to perfect the development plans for the industry. In implementing plans for development of the industry, equal attention should be paid to three aspects: 1) The overall interests of the industry nationwide should be stressed and given precedence; 2) There should be close liaison with urban economic management, and attention should be paid to exploiting the role of the central cities; 3) We must break through sectoral, regional, and military-civilian barriers to achieve overall planning, exploit advantages, and reduce and avoid duplication and waste. A uniform industry development plan to realize these three proposals that is adapted to national economic development should be drawn up as quickly as possible.

Regular relations and coordination between the national management departments of the machine tool industry and the comprehensive management of the provinces, municipalities, autonomous regions, and central cities should be strengthened. At the same time as direct controls over enterprises are being eliminated, a system of macroeconomic, indirect controls should be established and completed; this includes a system of economic levers, economic legislation (laws and regulations), and methods of applying information (regular release of information to guide production, development and demand), and developing and disseminating methods for improving capacity for macroeconomic control and regulation.

2. In keeping with the demands of modernization, adjust and improve the industrial structure making up the machine tool industry and provide a better "industrial climate" for development of the industry. One characteristic of modern industry is specialized production; in terms of the machine tool industry, in addition to the forms of technological specialization that have long been known (production specialization in casting, forging, welding, electroplating, heat treatment), and specialized parts production (such as centralized production of gears, etc.), another important characteristic of a modern machine tool industry is the ever-increasing specialization of functional parts for machine tools. This is an obvious weak link in the development of China's machine tool industry; it is becoming a key point of conflict affecting the pace of product development, product quality, and economic benefits. Therefore, we should enthusiastically organize and promote work in this area. The following are urgently necessary:

1) In accordance with the demand for electromechanically integrated, high-technology products, organize and expand the technological development and production of functional parts with numerical control devices, digital display and measurement, and other controls, and functional parts with electric-drive devices and other types of drive.

2) Expand development of machine tool functional parts and see to their specialized production.

Make every effort to create an industrial climate and enable mainframe producers to reduce the quantities of parts they must make themselves. In addition to the complementary parts (such as electric bearing machines and standard fasteners) produced by the specialized production system already established, attention must be paid to developing functional parts and organizing specialized production to supply such things as safety and protective devices, sliding guide accessories, guide screw accessories, worm gear accessories, main shaft parts, decelerators, coolers, etc. In keeping with China's specific conditions, the mainframe producers most urgently in need of these items may set aside workshop sections or shops to produce them, with gradual development for the market after the producers' own need have been met. Naturally, smaller enterprises with similar technologies and appropriate equipment should be selected for specialization.

3. Continue invigorating enterprises and enthusiastically develop horizontal relationships among enterprises.

Every enterprise should take full advantage of the series of national policy stipulations regarding the separation of government and enterprise, simplified administration and decontrol, and expansion of enterprise autonomy, as well as any preferential treatment accorded by local governments; before and after improving administration and management, varied forms of economic responsibility systems should be implemented, so that enterprises can constantly strengthen their capacity for self-transformation and self-development and for adapting to the market. At the same time, varied forms of association should be promoted in accordance with the demands of economic development. Forms of association suitable for the machine tool industry: 1) Associations centering on a contract for technological reorganization of key

aspects of machine manufacturing should have at their core a consulting company dealing in projects involving complete sets of equipment; 2) Associations whose purpose centers on the development of high-technology equipment should consist of alliances of research and production; 3) Associations centering on key factories should make use of technology transfers or diffusion of products and parts, so as to push along technological progress among other enterprises in the industry and to improve the economic benefits of the enterprise in question.

4. Focus support on key strengths and form a "national contingent" for the machine tool industry. Statistics show that of the nearly 1,000 enterprises in the machine tool industry, about 100 of them account for 95 percent of the development of new products for the whole industry, and they account for 50 percent of the output value. Thus, these enterprises constitute the main contingent of the machine tool industry. With no change in administrative relationships, financial and supply channels, or ownership systems, support for these key enterprises should be reinforced: give preference to investments in technological upgrading and to importing technologies; give priority to ensuring energy supplies, materials, and complementarity; give greater assistance to developing and strengthening qualified personnel; and give preference to certain economic policies. At the same time, apply more stringent requirements regarding their state assignments, their development of new products, and their improvement of product manufacturing quality, forming a "national contingent" representative of the levels and strengths of China's machine tool industry. Rely on this contingent to spur on technological progress and improved management throughout the industry, and to serve as the main attack force in fulfilling key state assignments.

5. Strengthen the research and technological development system and promote the creation of R&D centers. The machine tool industry has now established a system of research and technological development consisting of seven comprehensive research institutes, one factory design research institute, and more than 30 specialized research institutes. During the Seventh 5-Year Plan, we should focus on strengthening advanced research and testing procedures and establishing four computer-assisted design development, consulting, and service centers, and data banks on cutting and grinding. Among these research units, promote high-technology products and implement appropriate intermediate-production methods to facilitate the perfection, mastery, and dissemination of high technology, and provide the research units themselves with the funds necessary for continued development.

Persevere in reform of the research system and make a greater effort to integrate research and production. Given the existing basic conditions, it is possible and necessary to turn the existing seven comprehensive research centers into R&D centers with specific characteristics. These centers would serve various functions, such as attacking key research problems, intermediate production, technical training, consulting, technical and organizational services to the industry, etc. Through such varied approaches as monographic studies, joint research in key problems, and joint production, they can form a group consisting of centers with varied technical characteristics, supporting and permeating one another in many disciplines and technologies, giving them

greater strength and enabling them to become a base for technological development of the machine tool industry.

6. Establish and strengthen an industrywide organization and structure. On the existing basis of the machine tool industry's industrial management structures, enterprise (or company) economic entities, and R&D centers and academic organizations (associations), create an industrywide organization and structure, so that these five types of systems and structures function congruently, supporting and complementing one another, to form a complete operating system for developing the machine tool industry.

Of the industry organizations that most need to be supplemented, the most important is the Association of Machine Tool Industries; its function is to develop industrywide activities within the framework of several individual enterprises (or companies), activities that are needed but which there is no way of carrying out at present. For example, drafting industry standards, publication and analysis of market and technological information; gathering and sharing statistical data for the industry, organizing expositions and exchanges of technical and administrative experience; organizing activities to represent the industry's interests and contacts with international and other institutions; and other matters suitable for civilian, nonprofit activities.

7. Carry out focused, modern technological upgrading of enterprises. During the Seventh 5-Year Plan, financial and material resources should be concentrated on laying a foundation for development of high-grade products and their commercial production, and on providing the material conditions for continued product upgrading and increasing export competitiveness. Technological upgrading of enterprises should be more oriented towards modernization; digital-display and numerical-control devices should be enthusiastically adopted to ameliorate weaknesses in manufacturing methods and procedures, which will be beneficial in producing smaller quantities and greater variety, and in product renewal. Improvements in heat treatment, sheet metal, quality of painting techniques, and production and labor conditions for the production of abrasives and casting should be taken seriously.

Promotion of modern production management methods is useful in the planned dissemination of computers in production management.

Encourage enterprises to develop international contacts and international cooperation in production technology, adopt varied forms of importing advanced technology, and take full advantage of international technical resources. Strive to expand exports and to integrate technology and trade, and achieve the two benefits of technology and foreign exchange.

Adopt positive measures to improve personnel quality, reinforce technical training, in-service education for staff and workers, and refresher courses for technical personnel.

8. Strengthen the industry and enterprise quality assurance system. Strengthen the quality monitoring system for the industry, supplement the 13 product quality monitoring and testing centers for the machine tool industry, and create an authoritative, nationwide monitoring and testing system. Introduce a

system of production permits, and expand the range of issue of export product quality permits and production permits.

In keeping with the requirement of "Quality First," improve the overall quality control of enterprises and do the groundwork for all matters relating to quality. Speed up completion of the various systems of standards and make standards more comprehensive. Enthusiastically apply modern quality control methods and tools. Pursue reliable engineering to ensure reliable and stable product performance. Continue developing various forms of industrywide quality improvement activities and peer evaluation, eliminate any areas uninvolved in quality work, and achieve continued improvement in the industry's quality levels.

9. Apply economic levers such as pricing and taxation to promote technological progress.

For years the prices of the machine tool industry's products have been out of sync with other machinery products. The problem of prices being far below actual value is very severe and affects enterprise self-transformation and self-development, impacts enthusiasm for developing new products, and leads to a slow pace in renewal of backward products. Therefore, guided by the principles of the state's pricing policies, we must gradually even out the prices of the machine tool industry's products and find a way to set prices reasonably according to the characteristics of machine tools. We must cooperate with the financial and taxation departments in adopting taxation methods to limit production of backward products that are low-precision, short-lived, low-efficiency, and that consume too much energy and materials, with some of the additional tax income turned over to the state and some used to encourage development of new products.

Finally, one more point should be emphasized. The products of the machine tool industry are investment products. Their domestic market is determined by the strength of the national economy, the course of industrialization, and productivity and its rate of increase; it is determined by the direction of investment at each stage, the corresponding equipment policies, and equipment renewal and upgrading methods (the international market also rises and falls with changes in the climate). Therefore, in national economic development as a whole, the restrictive role of external factors in the development of the machine tool industry also has a determining influence. We should exploit and rely on the positive role of external factors and reduce their negative role.

In this way, with an effort made both inside and outside the machine tool industry to open up and create the conditions for a benign cycle beneficial to development, we shall certainly be able to achieve new progress and promotion of the machine tool industry.

13322

CSO: 4006/386

INDUSTRY

ZHEJIANG FORMULATES POLICY FOR LIGHT, TEXTILE INDUSTRIES

Hangzhou ZHEJIANG RIBAO in Chinese 20 Jan 87 p 1

[Article by reporter Lu Meiyan [7120 2734 7122]: "Province-wide Light and Textile Industries Department Directors' Conference Formulates Important Policy. Strategic Changes Coming in Zhejiang's Light and Textile Industries. Gradual Shift in Emphasis from Domestic Markets to Export-oriented Economy."]

[Text] An important policy was formulated at the province-wide light and textile industries department director (manager) conference which ended yesterday. In 1987, Zhejiang will implement a new strategic policy in its light and textile industries, shifting emphasis from domestic markets to emphasis on earning foreign exchange through exports while addressing the needs of the domestic market. It will adopt preferential policies and measures to develop export-oriented enterprises, and work on export of light and textile products to capture international markets. Wu Minda [0702 2404 6671], Deputy Secretary of the Zhejiang Provincial CCP and Vice-governor of Zhejiang Province, and Ma Cunying [7456 2625 2019], vice chairman of the provincial planning and economic commission, spoke at the conference.

Wu Minda said that last year Zhejiang's light and textile industries achieved a breakthrough as they pushed intensive reform, enlivened large and medium-sized enterprises, and increased production and sales of goods that meet demand to achieve brisk domestic and export sales. In 1986, the gross value of industrial output for light and textile industries rose 10.2 percent over the previous year's; profits grew 8.1 percent; and taxable profits increased 10.2 percent, all excellent results on all three fronts. Also notable were their achievements in earning foreign exchange through exports, with gross purchase value of Zhejiang's foreign trade amounting to 1.19 billion yuan, or 37.5 percent more than last year's, and a 26 percent increase in export-earned foreign exchange.

Following his full confirmation of the achievements of Zhejiang's light and textile industries, Wu Minda said that 1987 is the year for intensified reform of the economic system, and the year for changing over to new strategies in these industries. Throughout the whole province, these industries will gradually move onto an export-oriented track by establishing a base to earn foreign exchange through increased exports. He asked that cadre and employees in the light and textile system make full use of the advantages of Zhejiang's

coastal cities. As they develop an export-oriented economy, enterprises must boldly accept responsibility for earning foreign exchange, take the initiative, and contribute to Zhejiang's development of an export-oriented economy.

Wu Minda set forth five goals: establish a base focused on seven cities including Hangzhou, Ningbo, and Wenzhou for earning foreign exchange and spearheaded by famous brands, specialties, and superior quality new products; actively import foreign investment and technology and allow Chinese-foreign joint ventures to run smoothly; attach importance to using special economic zones as windows, cast sights abroad, and send out light industrial and textile products; pay particular attention to key export bases in coastal areas, do a good job in horizontally linking all positions, gradually put together a batch of distinguished products which have the potential to earn large amounts of foreign exchange so as to switch from simply chasing after quantity to winning with quality and from exporting raw materials and primary products to finished products of precision processing and increased added value; and make an active effort to set up export systems which link industry and trade to enhance the foreign exchange earning capabilities of enterprises.

Wu Minda further requested that everyone strengthen the building of a spiritual civilization during the opening up and enlivening process, guarantee the strategic changeover in the light and textile industries, heighten the ideological and political work on employees by insisting on the four basic principles and learning from foreign experience--but certainly not by copying them or by wholesale adoption of western ways, and steadfastly oppose tendencies toward capitalist openness.

12888

CSO: 4006/338

INDUSTRY

BRIEFS

SHANXI LIGHT INDUSTRY--Shanxi province's total light industrial output value in 1986 reached 850 million yuan, an increase of 12 percent as compared with 1985. In 1986, the province's light industrial export value increased by 48 percent as compared with 1985, and its light industry's taxes and profits totaled 180 million yuan, an increase of 19 percent as compared with 1985. Of them, its 1986 profits increased by 29 percent as compared with 1985.

[Summary] [Taiyuan Shanxi Provincial Service in Mandarin 2300 GMT 2 Mar 87 HK] /12913

CSO: 4006/439

SMALL-SCALE ENTERPRISES

REVIEW OF LESSONS TO BE LEARNED FROM FAILED BUSINESSES

Beijing JINGJIGONGZUO TONGXUN [ECONOMIC WORK BULLETIN] in Chinese No 8,
1986 p 22

[Article by the joint investigation team, Hebei Provincial CPC Committee General Office and Nangong County CPC Committee General Office: "Lessons from 40 Closed Enterprises"]

[Text] Town and township enterprises in Nangong County, Hebei, have developed very quickly, accumulating some experiences but also some problems and lessons. Recently, we investigated 40 closed enterprises in 22 townships and 16 villages in the county, discovering that the most important cause for the "falling down" of these enterprises was blindness in their growth. The signs of this were:

1. Lack of Market Research, Insufficient Evidence, Beginning Blindly. The oil pressing plant run by Qiucun Township invested 3,000 yuan in buying two small oil presses. They subjectively deduced that there would be successive bountiful cotton harvests and ample raw materials, so that the results from running an oil pressing plant would certainly be high. However, after running it for 3 months, hardly any of the masses came for processing; not merely did they not make money, they ran at a loss. Of the 40 failed enterprises, 12 closed for similar reasons.

2. Anxious to Open Factory, "Starving Person Cannot Choose His Food," Blindly Hired People. Some townships and villages did not make investigations and blindly hired people, such that the enterprise had "neither people nor property." Gaozhai Township hired a self-styled "expert in paint production technology" to be a technician, collected funds to buy equipment and instruments, brought in the raw materials, and opened a paint factory. The result was that three test-runs all failed. He again ran up to Beijing to get advice, and finally on the fourth attempt boiled up a pot of "paste." Only then did the township finally realize the bitter truth, that they had been deceived.

3. In Trying to Save Money and Get a Bargain, Blindly Bought Old Equipment. Some people were influenced by the small-scale peasant economic mentality and always thought that by buying old equipment, they would spend less money and still get good equipment, but in fact they really lost out. The Beihu

Township flour mill spent 10,000 yuan buying two sets of rejected equipment. Although in this way they spent half of what they would have on new equipment, the old equipment was always breaking down. After entering production, output was less than half of the equipment's production capacity, and the flour produced was both dark and gritty, unable to compete in the market. The mill finally closed down.

4. Ignored Market Changes, Blindly Continued Production. When the Wangdaozhai Township powerline pole factory was built, rural electrification was growing rapidly and many poles were used, making them a hot item with considerable profit every year. Later on, electricity use spread throughout the countryside, and the market for powerline poles was saturated; they really should have changed over production much earlier, but they still buried their heads and blindly continued production, causing a large oversupply and the ultimate forced closing of the plant.

5. Lack of Basic Knowledge, No Understanding of Business Accounting, Acting Blindly. When Haotun Township saw that the neighboring county was making a lot of money from producing featherless down, they decided to set up a similar factory. They hurriedly redid a factory building, bought equipment, and purchased raw materials. But due to their lack of basic knowledge, instead of buying "featherless down," what they bought was actually "downless feathers," leaving one uncertain whether to laugh or cry. The factory met an early death before it had even begun production.

6. Little Property but Grand Aspirations, Cut off from Reality, Blindly Craving Expansion. Some enterprises did not have funds, but they still wanted to puff out their stomachs and run a big factory. At the beginning of last year, Hou Liugu Village in Qiucun Township decided that it would run a big brick factory. They only noticed the shortage of construction materials in the cities, but did not analyse their own strength; the decision, however, had been made. They dug wells and bought bricks; the 30,000 yuan collected by the masses were quickly used up, but 60,000 more yuan were needed to complete construction of the brick factory. At first their eyes were fixed on a loan from the state, but at this time the state had strictly limited the money market, and there was no hope of a loan; the best they could do was to stop construction, with their 30,000 yuan being "pressed" beneath the bricks and "soaking" in the wells.

The above manifestations reveal some problems of a general nature which must be attended to in the current development of town and township industry. From these we should derive lessons which lead to deep reflection.

I Running Industry Definitely Requires Good Feasibility Studies, Investigation and Review of Evidence from Many Angles, Resulting in Scientific Decision Making. Should a certain industry be started? can it be run? should it be large or small?: before the decision is made, we must fully consider the subjective and objective aspects of the many limiting factors, such as markets, technology, raw materials, personnel, energy sources, transportation, funds, etc. Before the decision to open the factory is made, we must do proper investigations and research, review and debate the evidence, proceed cautiously, and choose the best policy.

II During the Production Process, Eyes Must Be Fixed on the Market, So That Change is Met with Change. While developing township and town enterprises, not only should we prevent blindness in constructing factories, we should also prevent blindness during the process of production, especially today, when market competition is intense, many different grades and kinds of products are consumed, and S & T are becoming new everyday; it is even more necessary to pay attention to movement in the marketplace, to raise the responsiveness to change, allowing our own products to reach the level of "producing one product, preparing two, and researching three"; to meet change with change is of the utmost necessity.

III Exercise Caution in Bringing in Personnel and Equipment. Township and town management departments, scientific commissions, scientific associations, and labor and personnel departments should help township and town enterprises to properly evaluate personnel brought in. At the same time, a variety of methods should be used to train the personnel in township and town enterprises, in order to meet the needs of township and town enterprise growth.

IV Strengthen Macroeconomic Guidance, Prevent Precipitate Mass Behavior. In macroeconomic guidance, overall arrangements should be made for the growth of township and town enterprises, based on local strengths and other subjective and objective conditions, gradually creating a sensible structure and distribution; in particular, we should prevent precipitate mass behavior, such as building again and again the same factories.

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AGRICULTURE

SECOND STAGE OF RURAL REFORM TASKS, GOALS OUTLINED

Changsha HUNAN NONGYE [HUMAN AGRICULTURE] in Chinese No 10, 1 Oct 86 p 2

[Article by Hu Xianshi [5170 6343 0013] of the Rural Policy Research Office, Central Committee Secretariat: "The Duty and Goal of the Second Stage of Rural Reform"]

[Text] The idea for the second stage of rural reform was proposed by the central authorities in Document No 1, 1984. The document stated that China's villages are facing two changes: one is the change from economic self-sufficiency or semi-self-sufficiency to a fairly large-scale commodity economy, and the other is the change from traditional to modernized agriculture. This means that the goal of the second stage of rural reform is to ensure and promote the realization of these changes. The most important task is to establish a sound market regulating mechanism which meets the needs of the socialist commodity economy. This mechanism will make production and demand responsive to each other and allow the economy to develop relatively smoothly. We are running a socialist commodity economy, with planning control on the one hand and market control on the other, each complementing the other. It will not work to only use executive orders and intervention. In order to develop the rural commodity economy, we must have a sound, coordinated market regulating mechanism.

In the first stage of rural reform, which basically consisted of implementing the output-related contract responsibility system, the emphasis was placed on eliminating the "big rice pot" and reforming the old over-centralized, egalitarian system of "ownership at commune, brigade, and team levels, with teams as the basic unit." The second stage of rural reform relies on the market mechanism to restructure production and to ensure the proper circulation and ideal alignment of labor, land, funds, technology, and other key production factors. This will further spur the rapid growth of production forces. There are two markets for commodity production: one is the commodity market, and the other is the key production factors market. These two kinds of market are closely linked to each other, and only by integrating them can a complete market be created.

In one kind, peasants produce a variety of agricultural products, and they need dependable markets to which they can go to sell what they do not consume themselves. If peasants cannot realize the value of their goods by selling

them, they will lose out and suffer economic losses. Peasants should thus first consider market needs and the prices of goods as they calculate the cost of inputs and the possible final profit; then they decide which area of production should be increased and which cut back, and what should or should not be bought. There is no peasant who produces in order to lose money. This type of economic behavior is natural. We cannot try to go against it, we can only adapt to it. We need to employ economic measures in order to bring peasant economic activity in line with national interests. We need to have a market mechanism and a group of organizations serving the market, including processing, supply and marketing, storage, shipping, and other service organizations and service facilities.

As for the other kind of market, the restructuring of production requires a key production factors market, since it necessarily involves the circulation and transfer of funds, labor, technology, and other key production factors. It will not work to have only a commodity market and not a key production factors market, for even if peasants discover a product which society needs, they will not be able to produce it unless they can receive funds, labor, technology, and other key production factors. Therefore, only by integrating the commodity market with the key production factors market can we create a complete market regulating mechanism.

How should we develop the commodity market and the key production factors market? Of course the most important thing is to adhere to the policy of deregulation and revitalization. If we do not relax control, continue to follow all that leftist ideology, and lock up the markets, or if we loosen up at the top but stifle the intermediate levels or loosen up in the countryside but stifle the cities, a commodity market will never come into existence and growth in production will not be stimulated. In the process of loosening up, we must be sure to learn our lesson from previous experiences, continuously perfect market rules, and improve the standard of market organization and management. We must also find new forms of commercial entities which can meet actual demands. These new commercial entities are able to operate more flexibly than state-run commercial units; they can also avoid the failure of individually-run commercial businesses to consider the overall situation.

In developing the key production factors market, we should further encourage the circulation of labor. We should create the conditions which will allow even more farm workers to transfer into light industry and the service industry. If we do not actually take this step, if there is no key production factors market, we will still not be able to fundamentally solve the problem of "800 million peasants feeding themselves." We should establish a financial market, concentrating the funds now in peasant hands into areas where they can have the greatest economic results. We should also study the question of distributing the usage rights for nationally-owned land, encouraging the concentration of land in the hands of competent farmers, so that there can be a certain degree of large-scale production. A current problem in land usage is that when the land was contracted out, it was parcelled out in quite tiny lots. The scale of production on each family's land is too small, affecting the use of advanced technology. Economic results would be greatly different if land were transferred to a number of competent farmers who could engage in relatively large-scale production and make wide use of advanced technology.

The growing rural commodity economy should not merely become a market for exchanging commodities; corresponding markets should also gradually develop for funds, technology, labor and the usage rights of nationally-owned land. This will facilitate free circulation and allow peasants to make the best choices and arrangements. Only by integrating the best key production factors can new production forces come into existence and spur the growth of production.

There is no available historical model for us to follow in establishing a market regulating mechanism which meets the needs of growth in the socialist commodity economy. We can only rely on the experience of the masses, learning as we go along, clearing the way for progress as we explore the unknown. Since this stage of reform involves the adjustment of various relationships, it will be hard to avoid shortcomings and mistakes. We therefore cannot indulge in "idealism" as we deal with this reform. It would be risky to think up a plan, assume right away that it is failsafe, and immediately start moving on it and promoting it everywhere. Establishing a sound market regulating mechanism is a systematic project. We do not have a good understanding of many new circumstances and problems, and we are still not aware of the laws underlying many things. In regard to the second stage of rural reform, we must therefore remain resolute, and at the same time our work must be thoroughgoing and meticulous; we absolutely must not become careless.

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AGRICULTURE

GRASSLAND DEVELOPMENT TERMED IMPORTANT FOR NATIONAL ECONOMY

Grassland Resources

Beijing JINGJIXUE ZHOUBAO in Chinese 27 Jul 86 p 3

[Article by Li Yutang [2621 3022 1016], deputy director of the China Grasslands Society: "Be Concerned with Development of Grasslands Resources, Make Use of the Important Role of Grasslands in the National Economy and the Standard of Living"]

[Text] Animal husbandry consistently has been a weak part of the national economy and grassland animal husbandry has been a weak part of animal husbandry as a whole. Although animal husbandry has grown in China in recent years, there remains an acute contradiction between social supply and demand for animal products. Over the past few years, for example, a "sheep's wool war" involving blockades and counterblockades has occurred between grassland wool-producing provinces and coastal provinces with a developed wool textile industry and the fires have not died down yet. Milk supplies for China's six largest cities still depend primarily on assistance from foreign countries, and they face problems of maintaining self-supply after they are stopped. There also are shortages in milk supplies in most other large cities. There have been persistent shortages in supplies of beef and mutton throughout China's cities and rural areas, and market prices for beef and mutton, butter, and other products are quite high. The rate of per capita income growth in many minority nationality autonomous regions where animal husbandry predominates or constitutes a substantial portion has been lower than the average national rate, which has increased economic differentials between nationalities. In many farming regions and provinces, reduced grain output in 1985 caused shortages of feed grains and higher prices. Furthermore, no new sources of feed have opened up, which has caused many specialized chicken- and pig-raising households to switch occupations and has caused a drop in local animal husbandry production. The existence of such problems is inconsistent with China's rich grassland resource conditions. They show that we no longer can delay development of grassland resources and utilizing the role of grasslands in the national economy and the standard of living.

There is enormous potential in China for the development of grassland resources. China has 6 billion mu of grassland in pastoral areas, grassy mountains, hills and slopes in farming regions, and coastal beaches, equal to more than 40

percent of the nation's area and two-fifteenths of the world's total grassland area, the second highest worldwide. Because they are distributed over a vast area with a diverse geography and climate, China holds first place worldwide in the number of types of grasslands and grass variety resources. Given China's situation of a large population, limited cultivated land, and relative shortages in grain and feed grains, the development and utilization of grassland resources undoubtedly is one of the major advantages for development of the national economy. At the same time, most of China's grassland is located in frontier regions, minority nationality regions, and old revolutionary base areas, most of which are poor regions with underdeveloped economies at the present time, so grassland development is of enormous political and strategic significance for eliminating poverty and bringing prosperity.

Nevertheless, for various historical and social reasons, grassland resource exploitation and grassland development have not received sufficient attention from society in China and the 3.3 billion mu out of the 4.7 billion mu of grassland resources that are being used basically remain in a state of primitive pasture utilization, while most of the 1.3 billion mu of grassy hills and beaches in farming regions has not been improved for utilization. Because of the lack of scientific management and utilization and active and effective construction, the forces of production for China's grasslands are extremely low, with a value of output of animal products per 100 mu of grassland that is less than one-twentieth the figure in the United States and one-tenth that in Australia.

Moreover, long periods of overcutting and overgrazing and of reclamation and destruction have created a serious loss of balance in the ecological environment of the grasslands. Vast areas of pasture have reverted to desert, and the reduced precipitation and more intense wind-blown sand have caused increasing soil erosion and water loss on mountain land and are endangering the lives of both urban and rural people. As a result, grassland control has become a major question that will affect future generations.

There have been obvious advances in grassland management and construction under guidance by the principles of the Central Committee and the State Council concerning accelerated development of animal husbandry, reinforced grassland construction, encouragement of grass planting and afforestation since the 3d Plenum of the 11th CPC Central Committee. A National Grassland Law was promulgated, output-related systems responsibility for pasture management by households or groups of households were implemented and various types of forage grass seed base areas were established. This led to self-sufficiency and even surpluses in forage grass seed output. A survey of grassland resources was carried out and experiments were done concerning the introduction and cultivation of superior varieties, while scientific research was done concerning aerial pasture seeding, grassland improvement, artificially planted grasslands, and other areas. Pasture construction was carried out on different types of grasslands and trials were made concerning animal husbandry development on grassland, comprehensive development of pasture animal processing, joint livestock-industrial-commercial economic bodies, and other topics. Rather systematic experience was gained in production technologies, management and administration, and systems of livestock-industrial-commercial service

organizations integrated with specialized households were established. Encouraged by the trial demonstration projects, the total area of retained grassland through artificial seeding and pasture improvement reached 100 million mu and the total area of enclosed grasslands reached 62 million mu during the Sixth 5-Year Plan. The rate of pasture construction has exceeded the rate of pasture reversion and desertification since 1983. This has created a vital and flourishing atmosphere in grassland construction in China and laid the foundation for future grassland development. There is, however, an enormous disparity in present levels of grassland resource exploitation and grassland development in China compared with those nations of the world with developed grassland animal husbandry. All of the pastures in foreign countries with developed animal husbandry have been enclosed and artificially planted pastures account for more than 10 percent of the total area in grassland in the United States and the Soviet Union and for more than 80 percent in New Zealand. Artificial and improved pastures account for only 1.7 percent of the grassland area in China. The proportion of enclosed pasture area is even smaller and has not been able to achieve a basic reversal of the situation of depending on nature for cultivation and primitive management. This requires that a lot of effort be made to accelerate the pace of grassland exploitation and pasture development.

Practice in trials over the past few years has proven that China has many different categories of grassland. If modern technological methods were used and scientific management and administration systems were established, we could use fewer investments than foreign countries to attain the same level in forces of production for similar types of artificial pastures in foreign countries. Planting of improved forage grasses on arid grassland in Nei Monggol and Xinjiang and the establishment of artificial pastures on the high, cold grasslands of Qinghai and Xizang, the loess plateaus of Shaanxi and Gansu, high mountain grassland in Yunnan and Guizhou, and tropical mountain grassland and coastal beach grassland in Guangdong and Guangxi have increased grass output over natural pastures of similar type by factors of five, ten and even more, and quality has doubled or tripled. Animal carrying capacities have risen to 10 mu [per head] (tropical zones), 15 mu (subtropical and warm temperate zones), 20 mu (temperate zones) and 25 mu (high, cold zones). Feed levels per head for dairy and beef cattle have approached or attained those of identical types of artificial pastures in foreign countries in terms of grass output. If we add improved livestock varieties, reform herd structures, and implement quick fattening and other scientific livestock-raising measures, the value of output from animal husbandry on grassland could be multiplied several times. If we also add the development of a modern processing industry for animal products and comprehensive utilization, the forces of production in grassland animal husbandry could be increased severalfold again. This would enable us to catch up with advanced world production levels for similar types of grassland. Thus, there are substantial prospects for the exploitation of grassland resources and the development of grazing.

Decline of Grassland

Beijing JINGJIXUE ZHOUBAO in Chinese 27 Jul 86 p 3

[Article by Yuan Xujiang [0765 2485 3068]: "Harsh Realities, Difficult Tasks"]

[Text] Grassland is an important foundation of animal husbandry production and China has 40 percent of the world's grassland resources. Gratifying achievements have been made in animal husbandry on grassland in recent years. During the Sixth 5-Year Plan, inventories of large livestock grew 19.4 percent, beef and mutton output were up 48.3 percent, milk output grew 116.3 percent, and sheep wool increased 0.02 percent, so things are quite encouraging. The ever-increasing severity of pasture reversion, however, is troublesome. Statistics indicate that more than one-third of the 3.3 billion mu of usable grassland in pastoral regions of northern China has undergone reversion, desertification, and salinization. Some 30 percent has seen infestations of rodents and insects and 25 percent of pastures are dry due to inadequate water. Grass output from natural grasslands of all types has fallen 30 to 50 percent over the past 20 years and there has been a decrease in improved forage grass varieties and an increase in the proportion of weeds within forage grass communities. It is quite common for the number of livestock put out to pasture to surpass the carrying capacity of the land, and there have been obvious declines in the quality of livestock products and live weights. This has led to an excessive number of animals relative to pastures, inadequate stores of grass during the winter and spring and a situation in which large numbers of animals die in the event of a natural calamity. Pasture desertification, salinization and reversion continues to expand at a rate of more than 10 million mu per year. This is the harsh reality.

According to forecasts in 2000 NIAN ZHONGGUO DE HUANJIANG ("CHINA'S ENVIRONMENT IN THE YEAR 2000"), pasture reversion in China, given current conditions of production, will continue for more than a decade to come. Grass output in primary livestock regions will decline more than 30 percent, while there will be a trend toward growing livestock density (increasing at about 9 to 10 percent). There is nearly 75 million mu of grassland at present that is threatened by desertification. The actual cause for this is that overgrazing, excessive firewood gathering, and excessive reclamation were responsible for 85.5 percent of northern China's 264 million mu of desertified land, while inappropriate utilization of water resources created 8.3 percent, and 6.2 percent is due to the action of wind energy and destruction of vegetation by construction projects. About 100 million mu has been cleared of grass and reclaimed since the nation was founded. By the year 2000, the amount of land that will be undergoing desertification, intense desertification, and serious desertification will be 44 percent greater than in 1980. These are figures that deserve considerable thought. We cannot be apathetic!

Since the 3d Plenum of the 11th CPC Central Committee, the Central Committee and the State Council, as well as leading comrades of the central authorities have issued many important instructions regarding strengthened grassland construction, including such things as protection of grassland, prohibition of reclamation, formulation of the "Grassland Law," reinforced grassland construction, rational development and utilization of grassy hillsides and grassland

in southern China, the development of aerial seeding, planting grass and trees, transformation of mountains and rivers, and so on. We have adhered to the principles of the central authorities and worked hard for several years, and there has been definite progress in grassland management and construction. The "Grassland Law of the People's Republic of China" was formulated and a responsibility system involving "dual contractual responsibility for grassland and prosperity" was implemented throughout pastoral regions. Some 100.266 million mu of manmade pastures and improved pastures were established, and 62 million mu of grasslands were fenced. We established 12 million mu of forage grass seed base areas with a yearly output of 71 million jin of grass seed of all varieties, which has led to self-sufficiency and even surpluses of grass seed. During 1985, 35.9 million mu of land was planted in grass or saw grassland improvement, the highest level in history. Despite this, we still cannot reverse the present vicious circle of ever-increasing numbers of livestock and ever-faster grassland reversion.

Currently, artificial grassland and improved grassland account for only 1.6 percent of the total grassland area. Two-thirds of China's 6 billion mu of grassland is in urgent need of improvement. If we fail to speed up the pace of construction, our transformation tasks cannot be completed in less than a century at the present pace. For this reason, there must be definite inputs of finances, materials, and manpower to accelerate the pace of grassland control and improve the ecological environment of our nation. We must strengthen grassland construction and strive to restore a balance between grass and livestock within a relatively short time, and we must alleviate the passive situation of dependence on nature for animal raising to achieve synchronous development at a normal proportion in both the quantity and quality of forage grass and livestock.

Seed Industry for Grassland

Beijing JINGJIXUE ZHOUBAO in Chinese 27 Jul 86 p 3

[Article by Liu Zixue [0491 5261 1331] of the Ministry of Agriculture, Animal Husbandry and Fishery "China's Rising Forage Grass Seed Industry"]

[Text] The forage grass seed industry in China has undergone major development since the 3d Plenum of the 11th CPC Central Committee. A whole series of scientific systems have been established and perfected gradually for grass seed production, processing and inspection, and obvious achievements have been made.

I. Improved forage grass seed breeding base areas have been established. Before 1979, China's forage grass seed industry depended mainly on the collection of wild grass seed by the masses. After the 3d Plenum of the 11th CPC Central Committee, China gradually established its first improved forage grass seed base areas. By the end of 1985, China had established over 60 improved forage grass seed base areas at various sites with grassfields covering more than 12 million mu of land capable of producing more than 71 million jin a year of some 60 to 70 varieties of grass seed. They have met the needs of grassland construction within China and ended China's history of importing large amounts of grass seed from foreign countries.

II. We developed selective breeding work for improved forage grass seed varieties. Since 1979, the Animal Husbandry Bureau of the Ministry of Agriculture, Animal Husbandry, and Fishery has organized technical forces in the grass industry at more than 30 institutions of higher education in agriculture (and animal husbandry) as well as scientific research units that have adopted a method which integrates education, scientific research, and production to develop selective breeding and screening of different grass varieties, and they are continually offering improved varieties and better methods to promote the development of production.

III. New technologies in forage grass seed processing and other areas have been utilized and extended. To catch up with advanced foreign technologies, China has focused on the importation and digestion of new technologies in forage grass seed processing and other areas in recent years, and we have applied them in grass production on a large scale, which has provided substantially improved quality and production results for diseased grass seed through inoculation against root diseases and fungi, careful grass seed selection and other technologies.

IV. Regional plans were formulated for forage grass seed throughout China. China has a vast and widely distributed area of grassland with different natural conditions. Grassland workers have undertaken experimental research over a period of several years to enable grassland to make use of its natural advantages to the greatest possible extent, and they basically have found grass seeds suited to the conditions of each area. A preliminary regional plan for forage grass seed in China has been formulated and it provides a scientific foundation for the development of the grass industry according to local conditions.

V. We established and perfected forage grass seed production and management systems. In light of the lack of clarity, disorganized nomenclature, and so on concerning the varieties of forage grass seed that still are being produced in China, the state established the "National Forage Grass Breeding Commission" in 1985 to carry out examination, registration and licensing of cultivated forage grass varieties. In the past few years, the state also promulgated the "Regulations on Forage Grass Seed Inspection," "Quality Grades for Primary Cultivated Forage Grass Seed," "Provincial Managerial Methods for Forage Grass Seed," "Production Technology Requirements for Improved Forage Grass Seed Production" and other regulations, and it set up national forage grass seed inspection centers in Beijing, Nei Monggol, Shanxi, Xinjiang, Gansu, Heilongjiang, Liaoning, Sichuan, Hubei, Guangdong and other provinces, autonomous regions, and municipalities that have undertaken quality supervision and inspection work for forage grass seed.

In summary, China's forage grass seed industry has risen up substantially in a few short years. There is a very large disparity when compared with the developed nations of the world, however, with some problems being especially prominent, the main ones being:

1. Weakness in technical staffs for forage grass seed and a lack of corresponding managerial organs. Inspection measures are extremely backward, which has led to universal problems with poor grass seed quality.

2. A lack of adaptation between grass seed production and grassland construction has created large overstocks of seed.

3. There is a lack of variety in grass varieties and many regions lack ideal varieties.

We firmly believe that with active coordination and substantial assistance from the relevant departments and the joint efforts of grass industry workers in all areas, the problems outlined above will not be hard to solve. The forage grass seed industry in China is just unfolding and we certainly will see a new takeoff in the not-so-distant future.

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AGRICULTURE

QUOTAS ON CONVERSION OF CULTIVATED LAND PLANNED

OW170720 Beijing XINHUA in English 0705 GMT 17 Mar 87

[Text] Beijing, 17 Mar (XINHUA)—China will issue by the end of this month state quotas on the conversion of cultivated land for non-agricultural construction in 1987, English-language newspaper CHINA DAILY reported today.

This is an effort to curtail the heavy loss of land which is continuing despite legal and state administrative measures.

The quotas mark the first time that China will have a national planned management of cultivated land used for non-agricultural construction, according to Wang Xianjin, general director of the State Land Administration.

He said the state quotas in this year's plan will, for the present, cover three areas of non-agricultural construction—construction by state departments and enterprises, collective institutions and enterprises, and farmers' housing.

However, Wang declined to disclose the exact amount of this year's quota but revealed that it would be below 320,000 hectares—the amount of cultivated land used for non-agricultural construction in 1985.

"China has a large population and its land resources are badly deficient, but the present situation of abusing, unlawfully occupying, wasting and destroying land and land resources is serious. It has resulted in great losses of cultivated farmland," Wang said.

Now, each person in China only has 1.5 mu (0.1 hectare) of cultivated land, half the amount of the early 1950s.

The state quota system is "one of the most important measures by the government to control the use of cultivated land and protect limited land and land resources from being abused or illegally occupied," said Liu Guangjin, director of the Department of Land Use Planning under the State Land Administration.

According to statistics, China has lost an annual average of 7.8 million mu (0.52 million hectares) of cultivated land each year since 1957. In 1985 alone 15 million mu (1 million hectares) were lost.

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CSO: 4020/140

AGRICULTURE

INCREASED AGRICULTURAL INPUTS EXPLAINED

Beijing GUANGMING RIBAO in Chinese 16 Oct 86 p 2

[Article by Liu Xunhao [0491 1575 3185] of Beijing Agricultural University: "Why Agricultural Inputs Should Be Increased"]

[Text] In recent years academic circles have brought in from the West various schools of thought or slogans, such as "organic farming," "ecological agriculture," "adaptable agriculture," and "biological agriculture." Within certain limits many of these concepts are valuable. But some of these people stress nothing but reliance on closed cycles of nature, and do not attach importance to providing necessary inputs into agricultural systems. Such views deserve scrutiny.

An agricultural system is formed by the agricultural economic system, agricultural ecology system, and agricultural technology system. It is characterized by the two-way conversion of energy and the open cycle of materials, that is, in addition to the natural input and consumption of energy, we must also add on the extra energy and materials consumed and supplied by man. If mankind only seeks to avoid putting anything into agricultural systems, such that inputs are fewer than outputs, this will cause excessive consumption of resources and the system will lose its equilibrium. It can result in soil erosion, desertification, ruined water resources, degenerating grasslands, etc. If there are scientific inputs and management, then energy efficiency and land production forces will continuously increase, and the resource environment will also continuously improve.

Production in agricultural systems is goal-oriented; it is intensive material production controlled by man. According to this writer's recent research, the net ratio of initial production forces in China's manmade farmland, forests, and grasslands is 10:3:0.7. If we deduct those areas which humans can only use with difficulty, the actual production forces ratio is 10:2:0.5. This means that the actual production forces of 1 mu of farmland is equal to 5 mu of forest or 20 mu of grassland, or that the output value of one mu of farmland is equivalent to that from 13 mu of forest or 50 mu of grassland. Furthermore, most farmland is becoming part of benign ecological cycles. Some comrades feel that natural ecological systems are definitely superior to manmade agricultural systems, or they use viewpoints from natural ecology to explain and deal with the complicated problems of agriculture. This obviously

does not take everything into account. In fact, the necessity and superiority of establishing manmade agricultural systems is becoming increasingly apparent. Experience has proven that low inputs only lead to low outputs. Only an increase in inputs will increase outputs.

For example, in 1952 China's total energy input into agriculture (including organic and inorganic energy inputs) was 30 billion joules/hectare. That year the annual grain output was 1,684 kg/hectare. By 1979 total energy inputs had doubled, whereas the yield had increased to 4,275 kg/hectare. If we do not give agriculture the energy and material inputs it deserves, it will return to the primitive state of low production forces.

Some people worry that increasing inputs into agriculture will lead to diminishing energy efficiency. In fact, this problem will not occur for some time to come. In the past 34 years, energy inputs into the Huang He-Huai He-coastal plain have risen 240 percent, but energy efficiency is still showing some increases. The reason is that energy efficiency starts to decline only when non-fossil fuel energy inputs exceed 40 billion joules/hectare. In most areas of China, however, the level of non-fossil fuel energy inputs is far below this figure.

When we speak of scientifically providing inputs into agriculture, at the present this means first of all choosing the best inputs. Based on surveys and research, the regional strategy for the development of Chinese agriculture over the next 15 years gives the following priority to input allocations: consolidate the north and the south, protect the northwest and southwest, and develop central regions. The next step is to follow the principles of comparing results. The production forces and output value of farmland in China's plains are much much higher than for forests and grasslands. Some places are currently shifting inputs from the plains to mountain areas, while other places are turning to grasslands in their effort to increase the grain acreage. Such decisions can only be made after results are compared; otherwise, the result will be high inputs and low output.

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AGRICULTURE

PROBLEMS IN VEGETABLE PRODUCTION OUTLINED

Beijing JINGJIXUE ZHOUBAO in Chinese 20 Jul 86 p 6

[Article by Xie Yongkui [6200 3057 1145] of the Jiangsu Province Academy of Social Sciences and Zhang Zhaojie [1728 0340 2638] of the Jiangsu Province Vegetable Office: "What Should Be the Focus of Jiangsu's Vegetable Production Base Areas?"]

[Text] Jiangsu Province is located at the confluence of the Chang Jiang, Huai He and Huang Hai. It is crisscrossed with rivers, lakes and harbors and has a warm moist climate as well as a long frost-free period, so it has excellent conditions for the development of vegetable production. Most of the prefectures and counties in Jiangsu can grow conventional fresh leafy vegetables year-round, and areas crisscrossed by streams and a small number of high mountains also can cultivate a wide variety of aquatic vegetables and woody vegetables. The province's vegetable markets are supplied year-round with conventional and special types of vegetables and there is a basic coordination of market supply and demand ratios. Before 1983, price increases for vegetables generally were held to within 3 to 5 percent, and there were no major price fluctuations. According to statistics, state-run vegetable enterprises in Jiangsu's large and medium-sized cities have lost money because of policies and for years have earned less than similar cities in China with similar supply populations. Rather scientific spatial systems for vegetable production have been established throughout Jiangsu. Each of the large and medium-sized cities have their own and they are capable of playing a role in assuring supplies. These are the primary vegetable production base areas that will provide results in the short run.

Nevertheless, intense changes have occurred in the proportional relationship between supply and demand in Jiangsu's vegetable markets in recent years and the contradiction between supply and demand has become acute. Output and amounts marketed of conventional vegetable varieties by the near suburbs have declined and there have been continual reductions in the amount of vegetables provided by the medium-distance and far suburbs, so objective changes have occurred in the relationships between vegetable base areas at different levels. The rather scientific spatial system for vegetable production developed over more than 2 decades has been attacked by the "flood" of the substantial development of the socialist commodity economy given the new situation, and the newly-established commodity economy exchange relationships between urban and rural areas urgently requires a new spatial deployment to readjust vegetable production within Jiangsu.

This situation shows that during the process of reforming urban vegetable circulation systems, the question of how to deal with the relationships among vegetable production base areas in the near, medium-distance and far suburbs, the establishment of the necessary new spatial relationships in vegetable production adapted to southern China and the rational and timely readjustment of production deployments are major issues related to guaranteeing the development of the socialist commodity economy in southern China and solving the vegetable problems of the population of these cities. For this reason, we feel after our investigation that the development of vegetable production in Jiangsu's large and medium-sized cities and the establishment of vegetable production base areas no longer should adhere to the principle of "focusing on the near suburbs." The main reason for saying this is that extremely obvious changes have occurred in the basic conditions of vegetable production, supply and demand in recent years and that these changes have had a direct effect on changes in the proportional relationship between market supply and demand of vegetables in Jiangsu. It is exactly these changes that have led to the appearance of a multitude of new problems and contradictions in vegetable-production supply and demand.

These changes in the basic conditions of vegetable-production supply and demand can be illustrated in the following seven areas:

1. A high rate of take-over of old vegetable land in the near suburbs and a gradual reduction in year-round vegetable land. The amount of year-round vegetable land in the suburbs of Jiangsu's 13 major cities announced by the Jiangsu Province Planning Commission in 1978 was 208,000 mu. Actually, no regions have planted vegetables according to plans since 1983. Some 186,000 mu were actually planted in 1984, which was 22,000 mu less planted than the plan, an amount equal to 11 percent of plans. There was another drop in actual area planted in 1985 compared with 1984, with a decline of 46,000 mu in areas planted or 22.1 percent of plans, so the actual planted area was only 77.9 percent of the plan. The main reasons for the declines in the area planted in vegetables were: 1) An excessive amount of land has been requisitioned by the state and taken over by townships (and towns) as well as villages to build factories. China's Wuxi City, where the township and town industry economy has enormous strength, saw more than 3,000 mu of old vegetable land requisitioned by the state or taken over by township and town enterprises, and the amount of vegetable land requisitioned or taken over amounted to 15 percent of the total area of old vegetable land in the city in 1985. There was a reduction of about more than 7,000 mu in vegetable land in Nanjing City during 1985 alone, more than the total reduction in vegetable land over the preceding 5 years, and most of it was old vegetable land in the near suburbs. 2) Vegetable growers have worked in an unauthorized manner to dig up the vegetable fields for which they had contracted and turn them into fish ponds, or they have leveled them for flower and tree nurseries and changed them into planned management projects. According to statistics, Zhenjiang and Yangzhou Cities alone have converted more than 3,000 mu of land of old vegetable fields, and a similar situation can be seen in Suzhou, Wuxi, Nanjing and other cities.

2. A rather serious problem of "contingency fields" that are abandoned or neglected after planting has appeared on contractual vegetable land in the

near suburbs and is showing a tendency toward continued development. The main reason is that vegetable growers who have contracted for the land find that they expend too much labor power on growing vegetables and that the intensity of labor is greater than that involved in giving up vegetables to go into commerce, or they are taking up individual industrial and sideline occupations or shipping. Abandoned land and "contingency fields" account for more than 30 percent of the vegetable field area in yearly plans and vegetable land abandoned on a seasonal basis can be found in almost every city.

3. Costs of vegetable production have risen and economic benefits are low. Louxia District in Nanjing City did a cost survey and calculation in 1984 of its seven communes at the time. The results were that, using 1981 as the base year, the average gross income of each of the communes increased by 418,200 yuan each year while costs and outlays increased by 598,300 yuan each year, so there was a net income loss of 175,000 yuan each year. Average costs per mu were 113.6 yuan in 1981 but rose to 153.9 yuan in 1983, a 40.3 yuan increase in expenses over 1981. Average net income per mu in 1983 was down by 1.9 yuan compared with 1981. The high costs of vegetable growing and the fact that the economic benefits are lower than those of other industrial and sideline activities has led the state to provide certain subsidies, but the old vegetable growers still are unwilling to raise vegetables. This has led them to give up vegetables and go into commerce or other activities.

4. The labor power of vegetable growers in the near suburbs has been reduced and its quality has declined. This situation is especially serious in the cities of southern Jiangsu, where more than 70 percent of the labor force has moved to township, town and village-run enterprises to take part in industrial and sideline production. Most of the labor force that has contracted for vegetable land is old, weak or female. Each vegetable grower in Suzhou City must assume responsibility for 2.5 mu of vegetable fields, with the figure in the highest villages exceeding 4 mu. There was a reduction of 3,200 in the vegetable grower labor force in the near suburbs of Nanjing City during 1985, leaving 28,000. More than 70 percent of this vegetable growing labor force, however, is made up of women, with men accounting for less than 30 percent, and most of them are over 50 years old. Situations in which each vegetable grower plants 4 or 5 mu of land can be found in all of Jiangsu's 13 large and medium-sized cities, and the sprouts of a lack of concern for meticulous cultivation and planting by vegetable growers in the near suburbs have appeared.

5. There has been a tendency over several years toward declining labor productivity in vegetable production in near-suburb vegetable growing regions. In the past, output in the old vegetable fields of Nanjing City's near suburbs was stabilized at around 10,000 jin per mu, but vegetable yields per mu have declined year after year. In Honghua Township, for example, output per mu was held above 10,000 jin before 1982 but fell to 9,800 jin in 1983, again to 9,600 jin in 1984 and continued to drop during 1985, when yields were only 8,000 jin per mu. Yields have fallen to 5,000 to 6,000 jin per mu in the old vegetable growing regions of four or five of Jiangsu's cities. The appearance of this situation is, of course, related to the declining quality of the labor power of vegetable growers. There is, however, another reason: most of the old vegetable growing regions continue to use traditional production tools.

In some vegetable growing regions, modern production tools and basic field and orchard facilities originally suited to large scale collective cropping no longer produce the fullest results on small scattered blocks of land following the implementation of production responsibility contracts for households. Some of these new and advanced production tools and techniques are not easy to extend in areas where decentralized and individual management predominates. All of these things will have temporary effects on quick increases in labor productivity in vegetable growing regions.

6. In the area of demand, the rate of growth of the urban population has exceeded that of the total population, and the vegetable-consuming population of the cities has grown even faster. The vegetable producing population of the near suburbs of the past has been transformed into a vegetable consuming population in the cities. According to figures provided by provincial statistical departments in Jiangsu, the non-agricultural populations of Nanjing, Wuxi, Changzhou and Suzhou Cities grew by 6.93 percent, 9.32 percent, 10.42 percent and 7.71 percent, respectively, between the years 1982 and 1984. The average yearly increment for the 4-year period from 1980 to 1984 was 2.98 percent, far higher than the 0.335 percent average yearly increase for the total population in Jiangsu over the same period. Added to the fact that the total wage levels of urban employees and workers in township and town enterprises have risen rather quickly, the result is that changes have occurred in the total amount of demand and the structure of demand in vegetable markets. The near suburbs historically have depended on a situation in which they supplied mostly "old, big and unrefined" products and no longer are adapted to the present needs of the vegetable consuming population in Jiangsu's cities and towns. Changes must be made in the traditional three-level layout of vegetable varieties in the near, medium-distance and far suburbs.

7. The proportion of commodity vegetables supplied to urban areas by the medium-distance and far suburbs of large and medium-sized cities and the counties adjacent to them has increased year after year, while the amount of vegetables reaching the market from the near suburbs has declined over the years. The amount of locally-produced vegetables coming mainly from the near suburbs stayed below the 1978 level over the 7-year period from 1979 to 1985. The amount was 338 million jin in 1985, only 63.28 percent of the 1978 figure of 534 million jin. In contrast, over the same period vegetable growing regions in the far suburbs or adjacent counties of all of Jiangsu's large and medium-sized cities have applied the principle of voluntarism and mutual benefit to set up linkages of various types with the related urban state-run vegetable handling enterprises to develop horizontal economic relationships between vegetable growing regions and town regions, and they have established fairly stable production and marketing coordination relationships. The variety of vegetables coming from other areas has grown each year and ranges from aquatic and woody vegetables with rather low preservation requirements to fresh and seasonal teas. The amount of vegetables from other areas also has increased in urban farm markets throughout Jiangsu. Changes have begun to occur in vegetable sources and supply structures in large and medium-sized cities and the effects created by the laws of a commodity economy in relation to the construction of vegetable base areas throughout Jiangsu is becoming increasingly apparent.

It is not hard to see from these changes that a simple fact must be acknowledged concerning vegetable production and supply in all of Jiangsu's large and medium-sized cities today: cities are expanding, vegetable land is moving out, the vegetable consuming population continues to grow and demand structures are changing. Since cities are expanding and vegetable regions are moving out, should we continue to "focus on the near suburbs?" Given the situation of a growing vegetable consuming population, changing demand structures and intense reductions in vegetable land in the near suburbs, wouldn't it be more suited to the interests of vegetable production, sales and consumption to retain part of the present high yield, stable output vegetable land to centralize production of high-priced fresh goods that are hard to ship over long distances in regions of urban demand? For this reason, we feel that solving the vegetable consumption problems of the people of China's cities by focusing on the "vegetable bowl" certainly must deal with actual levels of economic development and give full consideration to the actual situation of the structure of urban and rural economies, and it definitely cannot ignore profound changes in objective economic life and follow a single system for decades to assure that leafy vegetables and a variety of aquatic vegetables are grown during all four seasons of the year. Moreover, in Jiangsu Province and other provinces (and autonomous regions) of southern China with similar economic conditions which have had a rather long history of regular supplies, changes in the structure of the urban and rural economies, changes in the old division of labor between industry and agriculture and changes in the division of labor between town and countryside and the form of labor eliminate the need to advocate the principle of concentrating the development of vegetables in the near suburbs.

Given these economic changes, perhaps the best deployment of vegetable production base areas in Jiangsu would be to focus on the medium-distance and far suburbs and adjacent counties, with the near suburbs playing a supplementary role and reliance on shipments from other areas to make up deficits. In the varietal distribution of vegetable production, perhaps the best alternative would be for the near suburbs to focus on small fresh vegetables with a secondary concern for old, large and unrefined varieties, while the medium-distance and far suburbs and their adjacent counties should focus on old, large and unrefined varieties with a secondary concern for small fresh varieties.

Of course, immediate readjustments in the spatial deployment of vegetable production in Jiangsu in accordance with the above principle and quick results are not very likely. We firmly believe, however, that this step is necessary for the development of vegetable production in Jiangsu and a solution to the vegetable consumption problems of city people. A "focus on the near suburbs" is no longer adapted to the realities of economic development in Jiangsu today.

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AGRICULTURE

WATER CONSERVANCY INVESTMENT, BENEFITS REVIEWED

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[Article by Zhang Yue [1728 1471] and Yang Qisheng [2799 0796 5116]: "Water Conservancy Construction Investments and Benefits"]

[Text] Water is a basic requirement on which mankind and all living organisms depend for their existence. With socio-economic development, man's need for sources of water has increased steadily. Investment in water conservancy projects to produce sources of water and to prevent and control floods is a worldwide problem. For this reason, from the time of the founding of the People's Republic, and even before fighting had stopped, both the Party and the state devoted great efforts to agriculture and to water conservancy investing a great amount of energy and obligating financial and material resources to mobilize hundreds of millions of peasants to begin work in water conservancy. This reflected natural, historical and practical objective needs and it also created certain conditions for agricultural production today and for the development of agriculture.

I. Water Conservancy Investment and Major Benefits During the Past 35 Years

Historical data show an investment in water conservancy over the past 35 years totaling 91,101,000,000 yuan including a capital construction investment of 57,101,000,000 yuan, and an operating expenses investment of 34 billion yuan (including farmland water conservancy and water and soil conservation expenses). In terms of the control of water basins, four great rivers, the Huang He, the Huai He, the Hai He and the Chang Jiang accounted for 60 percent. Key provinces in which investment was more than 5 billion yuan were Henan, Hubei, Shandong and Hebei. Provinces in which investment was greater than 4 billion yuan included Jiangsu and Anhui. In Sichuan, Guangdong and Liaoning, investment was more than 3 billion yuan. In terms of investment use, investment in irrigation to serve agriculture directly amounted to 55 percent and investment to eliminate waterlogging amounted to 5 percent for a total of 60 percent. Investment to prevent flooding amounted to 22 percent, and investment to generate electricity, for navigation and to provide cities and towns with water amounted to 18 percent. In terms of total investment nationwide, water conservancy capital construction investment fluctuated around 50 percent of total national investment in agriculture. As a percentage of total national investment in capital construction, it averaged

5.7 percent during the 1950's, 8.54 percent during the 1960's, and 7.15 percent during the 1970's. Entering the 1980's, the percentage declined, amounting to 5.0 percent in 1980 and only 1.90 percent in 1985.

Since construction of water conservancy involving river alignment was not figured into national statistical indices, statistics obtained from water conservancy departments show a cumulative investment in fixed assets for water conservancy amounting to more than 100 billion yuan, more than 40 billion yuan of which were directly controlled by the state.

The volume of water currently provided by water conservancy facilities of all kinds for industry, agriculture and urban daily life amounts to approximately 460 billion cubic meters per year (including 50 billion cubic meters of ground water). This includes approximately 400 billion cubic meters of water for agriculture, or 84 percent, and approximately 57.2 billion cubic meters of water for industry and urban daily life, or 12 percent. The amount of water used by rural people and livestock, by the livestock industry and for other purposes amounts to approximately 19 billion cubic meters or 4 percent. These facilities have produced outstanding benefits for all sectors of the national economy through the development of water resources for use.

A. Preliminary Control of Common Flood Disasters

As a result of various projects, the ordinary flooding of major rivers has initially been brought under varying degrees of control. The perilous preliberation situation of a breaching of the Huang He dikes every 2 out of 3 years has changed to a situation of peaceful billows with no breeches having occurred during the late summer and early fall flood season during the past 35 years. During the high water of 1958, the flood peak volume of flow at Huayuankou on the Huang He was more than 22,000 cubic meters per second. This was more than during the 1933 flood. Nevertheless, thanks to the role played by projects for control of the Huang He and the efforts of people from all provinces along the river, victory was attained in the fight against floods. Initial successes have been scored on the Huai He in changing the serious situation of "large rains, large disaster; small rains, small disaster; and no rains, drought disaster." During the 1954 flood, the disaster stricken area covered 46 million mu. Today, our flood prevention capabilities have vastly improved; a flood on the scale of the 1954 one could be largely prevented. Following the 1963 flooding of the Hai He, outlets to get rid of flood waters and waterlogging were built for an improvement in ability to prevent floods. Today the middle and lower reaches of seven major rivers, namely the Chang Jiang, the Huang He, the Huai He, the Hai He, the Liao He, the Songhua Jiang and the Zhu Jiang, covering an area of more than 1 million sq km in which the country's principal political, economic and cultural centers are located and in which more than half of its population lives, rely on nearly 170,000 km of dikes to guard the country's economic development and the safety of the people's lives and property.

B. Preliminary Change in Agricultural Production Conditions and Impetus For the Development of Agricultural Production

A total of 340 large reservoirs with a capacity of 100 million cubic meters or more, 2,401 medium size reservoirs with a capacity of 10 million cubic meters or more, 14,313 small reservoirs with a capacity of 1 million cubic meters or more and 6,616 small reservoirs with a capacity of 100,000 cubic meters or more have been built nationwide. Total national reservoir storage capacity has increased from 28 billion cubic meters to 420.8 billion cubic meters. Electromechanical drainage and irrigation power has developed to 80.78 million horsepower. In north China pump wells used in farming, which had formerly been nonexistent, now number 2.41 million. Additionally there are 43,500 water turbine pumps at 23,700 locations. The irrigated area has increased to 740 million mu. Large and medium size irrigation areas of 10,000 mu or larger have been built at 5,288 places to irrigate an area of 312 million mu. This includes 143 large irrigation areas of 300,000 mu or more that irrigate an area of 116 million mu. The percentage of the irrigated area in each basin today is shown in Table 1.

Table 1. Present Percentage of Irrigated Area in Each Basin

River Basin	Cultivated Land Area (Million Mu)	Irrigated Area (Million Mu)	Percentage of Cultivated Area (%)
Chang Jiang	370	227	61
Huang He	186	64	33
Huai He	188	110	58
Hai and Luan Rivers	170	96	56
Zhu Jiang	78	4	50
Songhua Jiang	175	20	11
Liao He	69	18.8	27

Advances in irrigation have increased the area sown to paddy nationally from 340 million mu to 500 million mu, and the wetland area used for the growing of dryland crops has risen from 48 million mu to 340 million mu. Key national water conservancy projects have been built for commodity grain bases at Tai Hu, Boyang Hu, Dongting Hu, Lixia He, the Jiangnan Plain, the Chuanxi Plain, the Sanjiang Plain, Bishihang, the Guanzhong Plain, the Zhu Jiang Delta and in central Jilin Province. Grain and cash crop yields from these areas are much higher than the average for the provinces, municipalities or autonomous regions in which they are located. The speed of increase in gross output of grain generally corresponds to the increase in the irrigated area. For details, please see Table 2.

Table 2. Comparison of Speed of Increase in Grain Yields Per Mu and in Gross Output With Irrigated Area For 30 Years

Particulars	1949	1979	Percent Increase	Average Annual Increase
Irrigated area (100 million mu)	2.4	7.6	179	0.14
Gross grain output (100 million jin)	2,264	6,642	193	146
Wetland and dryland yields per mu (jin)	171	570	233	13.3

Representative sampling and experimental data from both inside and outside China show crop yields from irrigated land to be generally between two and three times greater than from nonirrigated land. Results from the analysis of statistical data for irrigated areas of 10,000 mu or more throughout Shaanxi Province show an accumulated gross output of 120 billion jin from the provinces irrigated grainfields over a 30 year period, and an accumulated gross output of 27.8 million dan from cottonfields. As compared with dryland output for the same period, the net increase in grain from wetlands was 77 billion jin and the net increase for cotton was 11.6 million dan, which converts to 12.5 billion yuan renminbi. If increased agricultural yields are figured at 50 percent from water conservancy projects and 50 percent from other sources, the benefit from water conservancy comes to 6.3 billion yuan, which is more than three times the 30-year national investment of 2 billion yuan for development of irrigation projects in Shaanxi Province. For the development of an effectively irrigated area of more than 2,000 mu, the state invested approximately 100 yuan per mu of irrigated area. For the country as a whole, cumulative gross output of grain for a 30-year period from the irrigated area nationwide has been 12,608,100,000,000 jin, approximately 6.3 trillion jin, or about one-half, of which has come from irrigated areas (670 million mu). This represents a net increase of approximately 3.78 trillion jin over dryland output for the same period. If 50 percent of the increase in yields is attributed to water conservancy facilities and 50 percent to other factors, this means a 1.89 trillion jin increase attributable to water conservancy projects, or 2.4 times the total national investment in water conservancy. Figured in terms of the proportion of investment directly applied to agriculture, the benefit equals 4.3 times the investment. The amount of investment (including operating expenses) directly used to serve agriculture was somewhat more than 44 billion yuan for a more than 430 million mu effectively irrigated area. This was a national investment of somewhat more than 100 yuan per mu of irrigated area.

In addition to irrigation facilities, two-thirds of a 350 million mu area throughout the country that is prone to waterlogging has been brought under preliminary control, and more than one-half of a more than 100 million mu of saline-alkaline land has also been improved. Four hundred thousand sq km of a more than 1.5 million sq km erosion area has been brought under control. Approximately 100 million mu of farmland that is able to produce a crop despite drought or waterlogging has been built. These facilities play a major role in improving the ability of farmlands to resist flood and drought disasters, in improving production conditions and in assuring increases in yields from agriculture.

Analysis of statistical data shows that of the approximately 20 billion jin annual decrease in agricultural production resulting from natural disasters of one kind or another, approximately 90 percent is attributable to floods, waterlogging or droughts. An average of approximately 400 million mu suffers annually from droughts or floods, but thanks to the role of water conservancy facilities, the calamity rate for floods and droughts has gradually declined year by year. During the 1950's, the average calamity rate was 46 percent, declining to 31 percent by the 1970's. This included a decline in the flood disaster rate from 56 percent to 40 percent, and a decline in the drought disaster rate from 34 percent to 28 percent. During 1978, major disasters afflicted more than 600 million mu of land throughout the country, but the calamity rate was only 44 percent and grain output still broke the 600 billion jin mark, water conservancy facilities playing a major role. China's population has increased tremendously during the past 30 years and the amount of cultivated land per capita has correspondingly declined by 40 percent, yet the amount of irrigated land area per capita has increased 60 percent. This has played a major role in assuring steady increases in both grain yields per mu and gross output.

C. Provision of Water Sources For Industry and Urban Daily Life

Not only does the country's water conservancy facilities provide agriculture with 400 billion cubic meters of water annually, but an estimated 57 billion cubic meters is provided annually to industry and to cities and towns. In addition, in areas where drinking water is a problem (including improvement of water in disease areas), they solve the drinking water problem for more than 40 million people. Today, numerous reservoirs have converted to providing water primarily to cities and to industry. Take the Guanting and Miyun reservoirs in Beijing, for example. Not only do they prevent floods and waterlogging in areas downstream, but they also provide tremendous benefits in supplying water. During the period from 1958 through 1980, these two large reservoirs provided Beijing, Tianjin and Hebei Province with 49 billion cubic meters of water, 22 billion cubic meters of it for daily urban life and industrial use and 27 billion cubic meters for use in agricultural irrigation. Beijing's industry relies on the reservoirs to provide 2.62 billion cubic meters of water affecting an output value of 50.7 billion yuan. They provide more than 900 million cubic meters of water directly to hydropower and thermal power stations for the generation of more than 120 billion kwh of electricity, for the irrigation of more than 2.5 million mu of farmland and for cities, rivers and lakes.

D. Preliminary Development of Enterprises From Which Water May Be Re-used Such as For Hydropower, Aquatic Products and Navigation

Installed capacity for the generation of electricity by water conservancy facilities for the country as a whole is 26.25 million kilowatts (including electric power investment installed capacity). This is 30 percent of the more than 85 million kilowatts of total national electric power installed capacity. If 2,500 hours are used per year with 65.6 billion kwh being generated annually at a cost of 0.0625 yuan per kwh, the annual benefit from the generation of electricity is 4.26 billion yuan. Small hydropower equipment

accounts for 9.52 million kilowatts of the nation's total hydropower installed capacity. This is approximately one-third of the amount of electricity used for agriculture nationwide, making small hydropower a major rural source of energy. Gross income from overall operations by units managing state-owned water conservancy projects comes to nearly 500 million yuan. Reservoirs nationwide provide 30 million mu of new water surface for breeding by the fishery industry.

II. Lessons and Inspiration From Water Conservancy Investment

China's economy and society is a huge and complex system, and water conservancy is also a complex enterprise that has a bearing over a wide area. Premier Zhou Enlai said, "Water conservancy is more difficult than rising to the sky." Analysis of investment in water conservancy in its vast lateral breadth and study of it in vertical depth makes one conclude that benefits from investment in water conservancy are huge. Nevertheless, there is also no small amount of problems. These problems have to be summarized, analyzed and studied diligently.

A. Benefits from investment in water conservancy are affected by overall investment policies. The size of benefits from investment are not determined solely by the absolute figures for the size of investment. There is an extremely great relationship between benefits from investment in water conservancy and the direction and scale of investment in national economic and social development, policies to increase benefits, and control policies such as plan control policies, administrative interference policies, regulatory policies that employ economic levers, policies to control economic laws etc. During the First 5-Year Plan period, overall investment policies were appropriate, and water conservancy work was also relatively prudent. Emphasis was placed on examination and approval procedures and attention was paid to project quality, with the result that benefits from water conservancy investment were rather good. Seventeen large reservoirs were built on the Huai and the Hai rivers. Quality was good on large flood prevention projects such as on the Jing Jiang in the Chang Jiang basin, and on the People's Victory Canal Irrigation Project for diverting the Huang to relieve the Wei, bringing resultant benefits. During the period of the Great Leap Forward and the 3 Years of Hardships, control over water conservancy construction was lost, each jurisdiction blindly building water conservancy projects and many areas not considering economic results in a rush to mass action. During 1958 alone, work was begun on 137 large reservoirs, five times the number of large reservoirs begun during the previous 8 years. They occasioned very serious consequences for water conservancy construction. One was the ill-advised diversion of the Huang He for irrigation. Water brought in for irrigation that could not be drained away created the salinization of large areas and the silting of waterways used for drainage. Second was action without taking account of capabilities, exceeding actual capabilities and abandoning projects in mid-course. This was the case in Gansu Province on the project to divert the Tao. Third was sole pursuit of more and faster, the quality of planning and designing being not high and management of construction not rigorous, which led to losses and waste. Such was the case at Yuqiao in Tianjin and at Qiuzhuang in Hebei.

During the 10 years of internal turmoil, there was another loss of control on a large scale over the building of water conservancy in a mad rush to develop farmland capital construction. The most classic example was the project for the eastward diversion of water from the west in Xiyang County. Following the smashing of the "gang of four," the foregoing problems began to turn around gradually; however, construction went ahead blindly despite complete plans and designs for the Fenghuangjing river pumping project and the Jiangxiang Reservoir project in Anhui Province. Dam building at Zhangfeng in Shanxi, Pingcui in Hubei, Heizi in Xinjiang, and Maliba in Yunnan was forced to a halt by failure to have taken capabilities into account. Starting and stopping created losses and waste.

Investment losses on large scale capital construction covered by the foregoing incomplete statistics amounted to approximately 4 percent of the total amount of national investment in water conservancy capital construction during the previous 30 years. Analysis of representative sampling done by some provinces shows waste resulting from farmland water conservancy undertakings, including diversion of earmarked funds as being equal to approximately 10 percent of expenditures for agricultural water projects. Losses and waste were greater in the north than in the south.

When talking about investment and benefits, it is necessary to regard with equal seriousness both main projects and associated projects, and to synchronize development of construction for production purposes and construction for nonproduction purposes. In water conservancy per se, key projects have been emphasized while ancillary facilities have been slighted, and emphasis has been placed on construction while management has been slighted and not handed well for a long time. Management standards are backward and living conditions such as basic facilities are backward. This has adversely affected improvement of results from investment in water conservancy and continuity among personnel. When no progress is made in fully equipping projects, it becomes difficult to keep permanent cadres, and when construction for nonproduction purposes does not move ahead, it is difficult to sustain benefits from construction for production purposes.

R. When water conservancy investment policies are unintegrated, one cannot be sure that benefits will flow from investment in water conservancy. First of all, on matters such as the amount of investment for an amount of fixed assets, what the scale of production will be and how to make fullest use of the economies of scale, it is necessary to consider as a whole investment policies, water conservancy industry policies and price policies, the investment structure and supervisory methods. Depending on the industry to which water conservancy belongs, whether it is a public utility, a business enterprise or in the nature of a public agency, how it will be managed, how water rates are to be set and how much is to be charged for water are matters that have gone unclarified for a long time. In terms of the system, investment in water conservancy is under the jurisdiction of the agricultural sector and serves society as a whole. If there is only investment and social benefits with no economic benefits from water conservancy per se, or if there is no revenue earned for the state, the entire society "drinking from a large common pot," this will mean that the more water conservancy is developed, the greater will be the burden on management. Without circulating funds and lacking funds

for replacement and improvements, and with no way to obtain funds for maintenance, it will be impossible to sustain simple reproduction and a situation will be created in which it will be difficult to carry on.

Second, economic benefits from investment in water conservancy are affected by social investments and factors of various kinds. If one does not take into account the overall situation before moving ahead, or if one does not fully appreciate the effect on the overall situation or does not consider matters completely, then investment by and benefits for central and local authorities, departments and industries may cause waste and losses for the overall situation. For example: 1) When the size of a city or the trend of its development does not take into account sources of water, it may become necessary to move water over long distances, thus necessitating an increase in water conservancy investment. Failure to take into consideration compensation to water facilities for expenses incurred in taking over land for construction. Failure to take into consideration the protection of water sources when opening mines. Removal of too much ground water creating ground subsidence over a large area or bringing about the reverse syphoning of sea water in coastal areas and the creation of new saline land. 2) Destruction of forest ground cover, particularly the destruction of watershed forests, which will hurt water conservancy facilities themselves. 3) Ill-advised competition by industry and agriculture with rivers for land, with rather serious consequences for a river's ability to clear flood waters and waterlogging. Construction on flood plains and in mountain ravines by tertiary plants, small towns and forest region cities and towns adding new problems for flood prevention. 4) Unauthorized and ill-advised reclamation of lakeshore shallows that decreases the natural ability of river-fed lakes to regulate water storage and also reduces the amount of usable freshwater that is stored and the size of the water surface. 5) Increasingly serious water pollution has intensified the potable water crisis for some industrial areas, cities and towns.

C. When everyone is a law unto himself in the development of water sources for use, this not only wastes investment and creates conflicts between industry and agriculture and among regions competing for water, but also brings needless disasters in its wake. When water conservancy units are in charge of surface water and geology units are in charge of ground water, and when rainfall, surface water and ground water, as well as the quantity of water, the quality of water and water courses lack unified planning and control, this creates a dispersal and a waste of investment in water resources.

The foregoing problems fully demonstrate the lack of an investment law for water conservancy, and they also demonstrate that various social factors directly affect the economic results derived from investment in water conservancy.

III. The Way To Increase Economic Benefits From Water Conservancy Investment

A. Strengthening of scientific management and giving priority to doing a good job in tapping potential for continued construction and equipping. During the past 35 years, countless water conservancy facilities have been built. The key to deriving maximum benefits from these facilities lies in scientific management. It is suggested that institutions be built or perfected as project facilities in each jurisdiction require, and that personnel be designated to manage farmland water conservancy facilities in a centralized way in order to derive fullest benefits from existing projects.

B. Strengthening of centralized planning and management of water resources. China's water resources (including ground water) total approximately 2.7 trillion cubic meters, ranking sixth in the world; however, in terms of the amount of water per capita, it has only one-fourth the world amount. In north China, in particular, the development of industrial and agricultural production is already limited by the availability of water. Consequently, extremely serious attention must be devoted to the development of water sources for use and their protection. Currently a series of contradictions and problems exist in the use of water resources, such as the struggle between industry and agriculture for water and industry's usurpation of agricultural water supplies. These problems result primarily from the lack of centralized leadership and management for water resources. Thus, a centralized organization responsible for water resources is required to formulate and supervise implementation of pertinent laws pertaining to water resources.

C. Give priority to doing a good job in readjusting water conservancy capital construction. Currently 37 projects remain to be completed requiring an investment of 6 billion yuan. The strengthening of large reservoirs that are in dangerous condition will require an investment of 1.5 billion yuan. There are also between 30 million and 50 million mu of irrigation areas of 10,000 mu or more than require an investment of between 3 billion and 5 billion yuan to equip them completely. Just these three projects alone will require an investment totaling between 10.5 billion and 12.5 billion yuan. Even if the state were to invest between 1 billion and 1.2 billion yuan annually, it would take 10 years to finish. Therefore, it is particularly important over the near term to readjust the projects under construction so that limited funds will be used where they do the most good. New projects will have to be strictly controlled, priorities being assigned on the basis of overall plans for basins and capital construction programs.

D. Conscientious conservation of water with improvement and perfection of water fee policies. In the major countries of the world today, laws about water provide policies for the collection of water fees. Collection of water fees has two goals: One is to promote high efficiency in the use of water as, for example, use of more efficient irrigation methods in agriculture and recycling by industry to increase the utilization rate. The other is to help enhance the safeguarding and management of projects and to expand benefits so as to be able to maintain simple reproduction. It is suggested that the state readjust and reform the prevailing methods of collecting water fees and institute a rigorous planning system to provide fixed amounts of water.

Standards and measures should be formulated for graduated fee increases when quotas are exceeded.

E. Good management and good use of existing funds, striving for benefits through reform. 1) Water conservancy funds should be properly concentrated for use, capital construction funds and operating funds being kept separate. Overall planning should be done for both capital construction funds and operating funds. Funds should be disbursed for each individual item on the basis of the size of the project, control being exercised at each level. There should be no level-by-level apportionment. Investment in large projects to control whole river basins should be centralized in the hands of central authorities. Where circumstances permit, circulating funds or loans may be substituted for operating funds; however, in economically distressed areas, the state is to make the investment. Conditions permitting, units receiving benefits and water conservation departments may pool funds for the building of projects on the basis of the advantages to be obtained by each. Alternatively, so long as there is centralized planning and use by all, investment may be made in proportion to the benefit to units, the water conservancy department being responsible for centralized construction and management. 2) A fund for the rebuilding of water conservancy facilities should be set up and a system instituted whereby industries have to pay compensation for water and cultivated land that they take away from agriculture, with compensation collected for the use of assets, these funds to be used to build new irrigated land. 3) No matter the kind of funds in the foregoing, a contract system and a contracting system are to be promoted for planned projects, and economic responsibility systems and the fixing of economic responsibility strengthened.

F. Establishment of a flood control fund for the operation of a flood control insurance agency. Flood control security is an important integral part of national security. The prevailing system whereby investment in flood control and investment in projects to provide water to industries, cities and towns are carried as investments in agriculture is unreasonable, and this also has an adverse effect on the economic results derived from investment in agriculture. It is suggested that the prevailing investment method be reformed, with the establishment of a flood control fund for investment in flood control. A certain amount would be collected as a flood control insurance fee from agriculture on the basis of the number of mu and output, and from industry on the basis of output value and the importance of what industry has to protect. Should no disasters occur, between 10 and 20 percent of the insurance fee for the current year could be refunded. Should a disaster occur, compensation should be made according to the nature of the disaster and the amount of damage.

G. A spirit of self-reliance should continue to be carried forward with proper reliance being placed on labor accumulations and the development of farmland water conservancy construction, bringing into full play the enthusiasm of the state, collectives and individuals. However, it is necessary to proceed according to capabilities, to give attention to actual results and to carry out the principles of voluntary participation for mutual benefit, exchange of equal value, and equitable responsibility for expenses on the basis of benefits received.

H. Local areas should be able to partake of some of the economic benefits from large water conservancy and hydropower projects. In the past, large water conservancy projects and hydropower stations frequently protected the lower reaches of streams for flood control, sent electricity to cities, industrial plants and mines and flooded large numbers of rural villages in the impoundment area, the local jurisdiction deriving no benefits whatsoever from the project and being only saddled with obligations. In addition, the overly low standards applied to compensation of displaced persons and the undiversified production of grain made for an extremely backward economy in the impoundment area. Therefore, losses from flooding in the impoundment area have to taken into consideration and some of the benefits derived from the projects returned to the local jurisdiction, so that losses and benefits will be balanced out.

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AGRICULTURE

DIESEL ENGINE PRODUCTION TO BE STEADY, UNSPECTACULAR

Beijing ZHONGGUO NONGJIHUA BAO in Chinese 10 Jan 87 p 3

[Article by Fu Zhenyu [0265 2182 1342], Internal Combustion Engine Department, China Mechanized Service Company: "Internal Combustion Engine Production and Marketing Situation Analyzed. Number of Internal Combustion Engines Used in Building and Maintaining Farm Machines To Remain At 1986 Level"]

[Text] The farm machine internal combustion engine industry is on the track of healthy development as a result of a complete restructuring during the past several years, the promotion of full quality control, trial use of production permits and adoption of international standards for inspection preliminary to acceptance.

Gross output value of the farm machine internal combustion industry for 1986 is estimated at 2.4 billion yuan, down nearly 8 percent from 1985. Total output for 1986 is estimated at 36.5 million horsepower, down 8 percent from 1985. Profits are forecast at close to 350 million, down approximately 20 percent from 1985. This shows economic results to be not too good, with no rises in output value and profits. Clearly, the marketing situation during 1986 was not as good as in the previous year; however, it still showed a substantial increase over 1984. Looked at in terms of the development of the internal combustion industry, there are two problems deserving of serious attention.

1. The Economic Results Problem

Economic results are a major indicator in the development of production and the enlivening of the economy. In 1986, economic results from farm machine enterprises in most provinces and municipalities were not too good. Profits were off by approximately 33 percent as compared with 1985, the drop being even greater in a small number of provinces and municipalities. Economic results from the internal combustion engine industry may be said to be fairly good in terms of the farm machine industry as a whole, with profits in the internal combustion machine industry averaging 5 to 6 percent more than in the farm machine industry as a whole. Nevertheless, gross profits for 1986 fell 20 percent from 1985 in an approximate 2 percent decline in the profit rate. This was attributable primarily to an inequitable price system, fairly strict control of farm loans and a lack of diesel fuel. In addition, various abuses in the management of enterprises have also adversely affected increase

in economic results. If problems in the price system cannot be fundamentally solved in the course of reforms during 1987, only by strengthening management and by increasing income and decreasing expenditures, directing efforts first to decreasing waste and improving quality, will it be possible gradually to improve economic results.

2. The Product Quality Problem

Most enterprises that produce internal combustion machines for farm machines have devoted very great efforts in recent years to the improvement of product quality. At the same time, they have paid close attention to "three contracts" technical service work for products, thereby winning the confidence of customers. However, since 1985, most enterprises have gone too far in making technical improvements, their production capacity rising too precipitously. Furthermore, in some enterprises there has been a tendency to emphasize only quantity and to neglect quality, and this has led to a decline in the quality of some products. Results of a state-supervised sampling of 27 models of multi-cylinder diesel engines and of 15 models of single cylinder engines showed 31 of the multi-cylinder diesel engines, or 48.1 percent of the number sampled, to be sub-standard. One, or 6.6 percent, of the single cylinder engines, was sub-standard. A considerable number of the models had failed to obtain a provincial, department or national premier designation, which showed insufficiently consistent quality and a fairly serious decline in quality, a fairly large number of problems appearing particularly in oil leakage, smoking, fuel consumption and cleanliness. During the coming year, enterprises must give serious attention to product quality and take genuinely effective action to gradually solve existing quality problems.

Plans call for the production of 38.1 million horsepower of internal combustion engines for use in farm machines in 1987, about 2 million more horsepower than in 1986. Preliminary analysis shows that production of internal combustion engines needed in the building and maintenance of major farm machine products such as tractors, motor vehicles used in farming, drainage and irrigation machines, plant protection machines, combines, machines for the processing of agricultural and sideline products, and outboard motors for boats will remain at, or be slightly less than, the 1986 level. An outstanding feature this year is that there is very little shortage of the kinds of internal combustion engines that have been in short supply and there has been an increase in the kinds that have been readily available for the substantial creation of a buyer's market. Nevertheless, the pressure on name brands has increased, the inability of supply to meet demand becoming more serious. For some kinds of multi-cylinder machines and single cylinder diesels, supply will exceed demand. For the Model 195 diesels, the problem of more production than sales is particularly noteworthy. Currently plants producing the Model 195 diesels are using name brands as a "turnkey" and are strengthening lateral ties in an effort to try to survive and develop.

In the industrial field, the production of internal combustion engines needed for equipping and maintaining key national construction projects, construction machines, engineering machines, cargo ships and boats, motor vehicles and diesel-powered electric generators will remain at the 1986 level, with some industries possibly increasing production. If state macro-controls are

relaxed, farm loans increased, the number of imported vehicles reduced and replacement of some vehicles in the country made mandatory, there will be a considerable increase over 1986 in the number of internal combustion engines used in motor vehicles, and there will be continued increase during 1987 in the number of large horsepower, multi-cylinder diesel engines needed for the building of energy, transportation, raw and processed materials and electrical communications projects. It is estimated that 75 percent of the planned 1987 diesel engine increase of 2 million horsepower will be for increased equipping and maintenance of industries.

In the export field, the situation during 1986 was pretty good. As of the end of November, 440,000 horsepower of diesel engines had been exported, the volume of transactions amounting to \$9,528,000, a 38 percent increase in exports over all of 1985. Preliminary export plans for 1987 call for sales of \$9.9 million, and it is estimated that exports of large, medium and small diesel engines will be higher than in 1986.

Overall, production of diesel engines during 1987 will continue steady and increase at an estimated 4 to 5 percent.

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AGRICULTURE

FUJIAN ACTS TO ENCOURAGE GRAIN PRODUCTION

Beijing RENMIN RIBAO in Chinese 2 Feb 87 p 1

[Article by Zhang Mingqing [1728 6900 3237]: "Measures Taken in Fujian to Increase Grain Production"]

[Text] Fujian, a grain-deficit province, is tackling grain production this year as a major part of economic development by adopting policies and measures to promote steady gains in grain output.

The province has substantiated the economic contents of the system of fixed quotas for purchasing, introduced a cheap fertilizer and diesel oil policy, and linked the release to food purchasing. Starting this year, a system was started whereby individuals are assigned quotas for grain purchasing, marketing, and allocating for a period of 4 years.

To increase grain production, Fujian has decided to set up a grain development fund to be financed by township and town enterprises as their industry-in support-of-agriculture effort, by the non-agricultural land reclamation fund, and by a 30 percent county food subsidy. The province has also set aside 2 million yuan in foreign exchange each year to pay for imported agricultural technology. All prefectures and counties are required to make sure that over 10 percent of their foreign exchange are spent on agriculture. As far as investments in modernization and transformation are concerned, more than 10 percent must be devoted to agricultural production, with an emphasis on the transformation of grain production technology. Funding for the breeding of improved varieties, the improvement of low- and medium-yield land, and the dissemination of agricultural technology was also increased as appropriate by the finance agency.

The implementation of an achievement reward system for agricultural scientific research is Fujian's way to encourage the scientific and technical community to increase grain production. All units and personnel who have made outstanding contributions to new technical experimentation, dissemination, and application will be rewarded. Townships, villages, farms, and large grain-selling households who have significantly increased yields, stabilized output, or over-fulfilled their production and purchasing quotas are also commended and materially rewarded. The province is determined to popularize eight pieces of new technology on an extensive scale this year, including the

techniques of growing high-yield hybrid rice, the transformation of low- and medium-yield land and technical contracting, optimal fertilizer application, covering, and chemical weeding.

With county as the unit, Fujian this year has identified 17 counties as commodity grain-base counties where each person has had over 500 kilograms of grain or which have produced over 7.5 million kilograms of grain net or procured more than 25 million kilograms net since 1985. The province will give them preferential treatment in the allocation of grain production development funds, material supply, agricultural technical services, storage and transportation facilities, and technical training. It has also tied the allocation of grain production development funds to grain output. The distribution of materials and industrial goods in short supply to grain-base counties also depends on the areas devoted to grain cultivation. A priority for these counties is the establishment of agricultural dissemination centers and technical training courses to improve grain storage and transportation conditions.

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AGRICULTURE

ADVANCES IN GUIZHOU'S RURAL MECHANIZATION

Guiyang NONGYE JINGJI YU JISHU [AGRICULTURAL ECONOMICS AND TECHNOLOGY] in Chinese No 12, 1986 pp 33-34

[Article by Xu Guanghua [6079 1639 5478] and Chen Yinghui [7115 3602 6540], Guizhou Provincial Farm Machinery Administration: "Guizhou's Developing Farm Mechanization"]

[Text] The 3rd Plenum of the 11th Party Central Committee turned a new page in Guizhou's agricultural mechanization. With the spread of the rural contract responsibility system linked to output, peasants were able to freely buy, freely deal in and freely use farm machines, overcoming three major conflicts that had gone unresolved for a long time. This linked together self-determination in development of the rural economy and self-determination in development of the mechanization of agriculture, solving the problem of agriculture and farm machines being handled as two different matters and two different efforts. It also linked together peasant enthusiasm for becoming rich through hard work and their enthusiasm for improving economic benefits from the mechanization of agriculture, solving the problem of dealing with these matters as though they were fundamentally irreconcilable and completely separate from each other. It also linked together free reign for the role of labor and for the role of mechanization to improve labor efficiency, solving the problem of labor and machinery being regarded as antithetical and in competition with each other for work and a future role. Year by year the number of individual rural households or combinations of households pooling funds to buy farm machinery and implements increased, bringing about a "farm machinery craze." As a result, the pattern of only state-owned farms and collective farms operating farm machinery changed, giving impetus to a rise in the level of the province's farm mechanization. This was particularly the case for hauling machines and processing machinery from which the peasants could derive direct benefits and for which the period for recovery of investment was about 2 to 3 years. This was an enticing direction for investment that attracted the peasants. Therefore, the increase during the past several years in farm machine power, in the numbers of tractors and motor vehicles used in farming and the number of processing machines in use throughout the province equals the total since founding of the People's Republic.

In the use of processing machinery, the focus of processing in the province has gradually advanced in recent years from a single processing of grain and oil to complete processing of diverse kinds of local specialties. A certain amount of advance has taken place in the use of rice flour milling machines, machines for the processing of various kinds of tubers, peanut shelling machines and tea processing and drying machines.

In the use of water-lifting and irrigation machines, the province currently has 7,225 electric irrigation stations, 3,892 mechanical irrigation stations and 4,009 turbine pump stations for the effective irrigation of a more than 6.2 million mu area, more than 60 percent of which is paddyfield area.

In the use of transport machines, the rugged roads in the province's mountain regions with their steep slopes and hairpin turns pose high requirements for transport machine power and safety. Today, mechanized and semi-mechanized transport equipment such as trucks, tractors and rudimentary hauling vehicles used in farming, rubber-tired horse carts and handcarts may be seen everywhere.

In the use of field farm machines, tractors, threshing machines and plant protection machines enjoy advantages that conventional hoes, plows and tadou [2337 2435] [possibly flails] cannot match in greater work efficiency, less intensive use of labor and less loss. They have been enthusiastically welcomed by the peasants. In 1985, 71,000 mu was machine farmed in the province, 77,000 tons of grain was machine threshed and nearly 100,000 plant protection devices were in use.

In development of the province's grassy mountains and grassy hillsides for use and in development of animal husbandry, the province has not only undertaken research and development of some livestock machines but has also imported from abroad a complete group of haymaking machines, which are now being tried out.

The large increase in the numbers of farm machines and their effective employment has played a tremendous role in the province's agricultural production, and has also made a contribution to development of the rural economy and to peasant escape from poverty to become wealthy. First has been a vast improvement in rural transportation conditions and in the processing of grain and oil. There has been a common saying in mountain areas that "mountain folk have a miserable life and their farm work is hard; their carrying poles are never off their shoulders all year long; the males are so weighed down that they become hunchbacked, and the females are so tired that their backs and feet ache." Today, however, approximately 70 percent of all rural hauling is done by motor vehicles, tractors or large rubber-tired wagons. Throughout the province, except in a small number of border districts, processing of grain and oil has been substantially mechanized. Second has been increase in ability to withstand various natural disasters. Water lifting and irrigation machines and plant protection machines have been conspicuously important in the province's ability to withstand drought, plant diseases and insect pests. In 1985, for example, when Guizhou had an extremely serious drought, 460,000 pieces of drought-fighting equipment of various kinds, including gasoline engines, diesel engines and submersible pumps, joined the battle against drought in prefectures and autonomous zhous such as Zunyi and Tongren in

southeastern and southern Guizhou. Third has been impetus to the development of township and town enterprises and to development of the rural economy. Mechanization of agriculture has reduced the amount of labor required to handle the peak load periods during busy seasons in farming, permitting a transfer of labor from farming to economic diversification in township and town industries and in the service trades. As of the end of 1985, there were 293,000 enterprises in the province at the village level and below alone, and township and town enterprises had a gross output value of 1.92 billion yuan, a net increase over 1984 of 25 yuan per capita of agricultural population in gross output value. Households specializing in farm machines sprang up like bamboo shoots after a rain and continued to appear. By 1985, there were a total of more than 90,000 specialized farm machine households in the province, most of which had become well-off households.

The pervasive rural reforms are causing agriculture to develop in the direction of specialization and socialization. The mechanization of agriculture has to break out of the former narrow circle. It has to change from the sole mechanization of farming to mechanization of production processes throughout agriculture, forestry, animal husbandry, sideline occupations and the fishing industry, i.e., the mechanization of rural villages. Over the near term, emphasis has to be on the machines used in agriculture that are cited below.

In order to make equitable and effective use of water conservancy resources and to reduce to the maximum extent possible the threat that drought poses for agricultural production, electromechanical equipment for lifting water and for irrigation must be developed to the full. Suburban vegetable growing areas and flue-cured tobacco producing areas should gradually increase spray irrigation. Rural villages not covered by the national electric power grid should gradually popularize development of mini-hydropower.

There should be continued steady development of the mechanization of field operations.

Mechanization of plant protection should be done as quickly as possible, linking it better to biological protection and control techniques in order to control at around 5 percent the disaster-affected area.

The processing and full processing of agricultural and sideline products such as grain, tubers, livestock feed, special forest products, fruits and tea should be gradually mechanized.

Eighty percent of rural transportation should be mechanized. Leveling and improvement of the more than 6 million mu of land suitable for machine farming should make approximately 10 million mu suitable for machine farming by the end of the century and make possible the mechanization of both plowing of the land and preparation of the land for sowing. More than 60 percent of the province's grain crops should be machine threshed. Once techniques for using drying equipment have become widespread, it should be possible to hold losses of grain through mildewing at below 1 percent. During this period, development of improved farm implements and of new animal-drawn equipment should proceed in tandem.

Accompanying readjustments in the structure of rural industry will be vigorous development of machines for use in breeding and for the raising of livestock as well as associated machinery and equipment.

The overall idea is to use increase in various machine operations and development of commodity production to bring about the quick transfer of two-thirds of the rural workforce to non-farming work for a burgeoning of the rural economy.

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AGRICULTURE

POTENTIAL CRISIS IN HEBEI WATER CONSERVANCY

Shijiazhuang HEBEI RIBAO in Chinese 20 Oct 86 p 1

[Article by an observer in the staff rural economics section: "Potential Crisis in Hebei's Farmland Water Conservancy Construction"]

[Text] In the past 5 years, the irrigated acreage in Hebei has gone down 740,000 mu, and the signs are that the reduction will still continue. This major problem deserves our very serious attention and is in urgent need of solution. The annual reduction in Hebei's irrigated acreage is naturally connected with the successive years of dry conditions. But a more direct cause is that, in regard to farmland water conservancy construction, we have rested on our laurels and have not continued our efforts.

Irrigation in Hebei consists of two kinds, well irrigation and ditch irrigation. Well irrigation accounts for 80 percent of the total acreage. Hebei currently has 570,000 mechanized wells. Most of these mechanized wells are concrete-lined wells, dug around 1970, which are about due for replacement. For example, from 1965 until now, Jixian County has dug a total of 9,650 mechanized wells, including iron, mortar, and reinforced concrete pipe wells. Mortar pipe wells account for 8,783 of these, but to date 7,253, 75.3 percent of all mechanized wells, are out of commission. Data from the provincial water conservancy department show that every year 7 percent of the mechanized wells--that is 40,000 wells--need to be replaced. But last year only 29,000 mechanized wells were dug in Hebei. During the Seventh 5-Year Plan, Hebei needs to replace 180,000 mechanized wells. If they cannot be replaced on time, there is danger that the irrigated acreage will continue to decline. The newly dug wells cannot make up for the ones that naturally go out of usage, much less allow progress to be made. In ditch irrigation there are also many problems in urgent need of solution. One such problem is that there is little done to prevent seepage in the project network. Only 17.5 percent of the length of ditches needing stone lining in Hebei have been lined, causing the water use coefficient to be quite low. In addition, little water has been stored on land in recent years, so only about 10 million mu can be irrigated annually, more than 5 million mu less than the designed capacity. A second problem is that the projects are long past their prime, so that there has been serious natural aging. Many installations are "operating with defects" and "rendering more service than expected." Most irrigation zones in Hebei were built around the 1960's, and the structures in some old irrigated

areas date from before liberation or the first few years after liberation. In Hebei there are 6,515 principal structures in need of major repair or replacement on irrigation zones covering more than 10,000 mu; they account for 21.3 percent of all principal structures.

Despite the multitude of problems in Hebei's farmland water conservancy, it has not aroused sufficient concern among leaders. Many comrades only see the bountiful harvests year after year, ignoring the potential crisis in water conservancy. During the Sixth 5-Year Plan, investments in water conservancy by the state and collectives decreased each year. In Shijiazhuang Prefecture, for example, the farmland water conservancy and annual maintenance funds arranged by the state and prefecture were: 1980, more than 10,062,000 yuan; 1981, 8,679,000 yuan; 1982, 7,391,000 yuan; 1983, 6,322,000 yuan; 1984, 6,531,000 yuan; 1985, 4,416,000 yuan. At the county level, investments in small-scale farmland water conservancy projects also tended to decline each year. From this we can see that in the past few years, people have not been increasing the investments in farmland water conservancy, but rather are gradually reducing them, relying on past work to get by. Just imagine how it will end if this continues for long!

Agriculture is the foundation of the national economy, and water conservancy is the lifeline of agriculture. In the past people often said that with water the fields are green, but without water the fields are brown. If we ignore farmland water conservancy work, it will be impossible to steadily improve agricultural production. We can categorically state that Hebei's current problems in water conservancy already constitute a direct threat to agriculture. If we keep the present level of investment and do not increase investment during the Seventh 5-Year Plan, the potential crisis in water conservancy will explode. By the 1990's we will have almost run out of steam, and even right now we do not have much.

With all the current problems in water conservancy in Hebei, what should be done? A summary of the ideas of officials and ordinary people in a few places basically falls into five areas: 1) The province and each prefecture and city should start this year to increase investment in water conservancy, so that within 2 to 3 years we can return to the level of 1980. 2) After the state has returned to the original level and then made further increases in water conservancy investment, water conservancy departments should stress key projects, schedule the best projects, and strictly forbid exceeding the plan. As circulating funds, farmland water conservancy funds should really be used to subsidize the masses' construction of farmland water conservancy projects. 3) The "industrial subsidy of agriculture" portion of the income from township and town enterprises should be used by local city and county governments to directly improve agricultural production conditions, build water conservancy projects, and help compensate for the serious shortage of water conservancy funds. 4) Small-scale farmland water conservancy should rely on funds collected from a variety of sources, encourage peasants to increase input into water conservancy, and establish a sound system for contributing labor. According to the principle that "whoever gains must take the responsibility," we should perfect the methods for cooperative building of farmland water conservancy projects, such that there is mutual help and mutual benefit. This creates the right conditions for peasant investment. 5) When the province, prefectures, and cities hand down quotas for steel products, lumber, and cement, a certain proportion or a prescribed quantity of supplies should be reserved for materials needed in farmland water conservancy. Furthermore, materials should be used for the intended purpose.

AGRICULTURE

PURCHASE PRICE REFORMS FOR HEILONGJIANG GRAIN CROP

Harbin NONGCUN FAZHAN YANJIU [STUDIES ON RURAL DEVELOPMENT] in Chinese No 6, 1986 pp 4-7

[Article by Han Bingyao [7281 3521 6540] and Pu Yingmin [2613 5391 3046], Heilongjiang Province Price Research Institute, Northeast Academy of Agricultural Sciences: "Strategic Thinking on Reform of Grain Procurement Prices To Promote Steady Grain Increases"]

[Text] Rural China is currently in the process of changing from a traditional natural economy to a modern commodity economy in which the laws of value play an increasingly broad role in development of the rural commodity economy. For this reason, how to apply price levers to promote steady growth of grain production is a question requiring diligent exploration in the present reform of grain prices.

I

Prices are indicators of expansion or contraction of grain production by grain farmers. Today, China's peasants have become commodity producers, and since peasants are commodity producers, pursuit of economic benefits remains the internal force that impels them to develop commodity production. Therefore, no matter whether grain prices are spontaneously changed as a result of market regulation or whether government regulates them, the peasant response will be sensitive. Price changes serve to restrain or stimulate grain farmer enthusiasm. The effect on grain production of changes in grain prices in the province have completely borne out this point for a long time.

It is widely known that one of the reasons for the upturn in China's grain situation was institution of responsibility systems, and that another was increases in grain procurement prices. Since 1978, procurement prices for the province's agricultural and sideline products have risen 74.4 percent, including a 46.5-percent rise in grain prices. This solved the longstanding problem of overly low grain prices, the peasants deriving real benefits thereby. During the 7-year period from 1979 through 1985, rural villages sold an average of 3.14 billion yuan worth of agricultural and sideline products each year, 1.6 billion yuan more than in 1978 for a 104-percent increase. Price rises accounted for 1.12 billion yuan of this and the rise in output accounted for 480 million yuan of it. In 1985, rural sales of agricultural and

sideline products totaled 4.49 billion yuan, a 2.95 billion increase over 1978. Of this amount, 1.92 billion yuan was attributable to price rises and 1.03 billion yuan was attributable to increased production. This means that two-thirds of the increase in rural earnings derived from price increases. The increase in grain prices brought benefits to the peasants and fired peasant enthusiasm. During 1983 and 1984, grain production underwent a crucial change that fundamentally changed the country's longstanding grain shortage and solved the problem of sufficient clothing and food for its 1 billion people. This major accomplishment attracted world attention.

Nevertheless, simultaneous with the upturn in the supply of grain and improvement in the peasants' standard of living was an increase in the price of some of the means of agricultural production. First was cancellation of the preferential price for diesel fuel followed by an increase in the sale price of chemical fertilizer. Prices outside of plan were put into effect for the means of production and prices rose for small farm implements and small tractors. In addition, specialized households who contracted farm machines, hauling, draining, and irrigation also raised their standard fees disproportionately. All these events created a rise in grain-production costs and an evident decrease in grain farmer earnings that dampened enthusiasm for grain farming. This was one of the major reasons for the 1985 decline in grain production. In 1985, the country's grain output declined more than 50 billion jin in a 7 percent drop from 1984. In Heilongjiang Province, there was a decline of 6.5 billion jin, an 8-percent drop from 1984.

The foregoing events tell us that price laws have no feelings. They play an objective role. Correct application of price levers can stir peasant enthusiasm, enabling rapid expansion of grain production. Conversely, a penalty will have to be paid. If there is to be a steady increase in grain production, we believe there positively can be no restrictive policies (price controls that limit grain production) in the overall policy decisions regarding grain prices. Instead, policies to promote development (grain price reforms to promote increased grain production) must be instituted. This is a key link in the strategy for development of grain production.

II

Overly low grain prices adversely affect a steady increase in grain production. Admittedly, expansion of grain production depends primarily on modern science and technology and on increase in labor productivity rates; however, in Heilongjiang Province, the following factors inhibit the application and development of science and technology, making difficult the desired attainment of various goals.

1. Low Grain Prices and Small Earnings From Grain Farming Impair Peasant Enthusiasm for Growing Grain

There are many reasons contributing to the lack of peasant enthusiasm for grain farming. There are problems in the supply of the means of production and there are also problems in channels for the movement of grain; however, the main problem is small earnings. The following several circumstances have a bearing on the reduction in grain farmer earnings.

First is an increase in prices for the means of production and a rise in grain-production costs. Statistical data show an 8.9-percent increase over 1983 in the 1984 retail prices of 22 different means of agricultural production. This increase, plus increases in prices for water and electric power used in agriculture, and in the quantities of the means of agricultural production that are used cost the peasants an additional more than 800 million yuan, or a rise in costs averaging 6.75 yuan per mu of grain. In Heilongjiang Province, expenditures for materials used in growing five different grains (not including soybeans) amounted to 19.49 yuan per mu in 1983, 24.85 yuan in 1984 and 27.52 yuan in 1985. In 1985, costs for materials were 2.67 yuan more than in 1984 and 8.03 yuan more than in 1983. Production costs were 33.68 yuan per mu in 1983, 41.83 yuan in 1984 and 43.86 yuan in 1985. In 1985, costs were 2.13 yuan per mu higher than in 1984 and 10.18 yuan higher than in 1983. The increase in expenditures for materials and the rise in production costs resulted in a decline in the real income of grain farmers (Please see the following table for details.)

Table Showing Changes in Costs and Earnings Per Mu For the Growing of Six Different Grain Crops Between 1978 and 1985

Units: Jin, Yuan

Particulars			Increase or Decrease Between 1978 and 1985	
	1978	1985	Absolute Figures	Percent
1. Output value total	43.46	63.37	19.91	45.8
Major products output	273	264	-9	-3.3
Procurement price per 100 jin	13.69	21.50	7.81	58.0
2. Total cost	26.93	39.48	12.55	57.0
Materials cost	13.03	24.00	10.97	84.2
3. Taxes	2.22	3.15	0.93	41.8
4. Net income	14.31	20.74	6.43	44.9
5. Cost per 100 jin including taxes	9.29	14.26	4.97	53.5
6. Income per 100 jin	4.40	7.24	2.84	64.5
7. Net output value	28.21	36.22	8.01	28.4

The foregoing table shows a 7.81-yuan rise in grain procurement prices between 1978 and 1985, and a 4.97-yuan increase in costs per jin [sic, per 100 jin probably intended] of grain and no increase in grain output. Therefore, as a result of the rise in costs, of the earnings derived from a rise in the price of grain only 2.84 yuan remained for the peasants, 63.6 percent having been eaten up by rising costs. This was not all. The portion consumed by the peasants themselves was not commodity grain, so they did not get the 2.84 yuan increase in income on this portion. In Heilongjiang Province, the ratio of grain for self-sufficiency and commodity grain is 1:1.6. If the increased payments resulting from a rise in prices for the means of production to produce grain used for self-sufficiency are amortized against the commodity grain portion, little increased income remains for the grain farmers. Nothing

to be gained is the real reason for the lack of enthusiasm of numerous grain farmers, and this is a problem currently in urgent need of solution.

Second is fairly low economic benefits from the growing of grain. Peasant earnings from the growing of grain are markedly lower than from the growing of cash crops or from other economic diversification endeavors. Surveys show peasant earnings from the growing of cash crops to be 59 yuan per mu, while income from the growing of grain is 35 yuan per mu. Annual earnings from the growing of grain are 919 yuan per capita of the workforce, while they are 1,428 yuan from the growing of cash crops. Income from animal husbandry is also higher than from grain farming, and income from hauling and merchandising is even higher. Because of the low earnings from growing grain, some peasants inevitably "leave grain," transferring land, labor, and capital to undertakings that produce more income. Such transfers are currently not entirely attributable to the need for readjustment of the industrial structure but result, to a very large extent, from blindness in action. Direction should be provided in an overall way.

2. Low Grain Prices and Small Earnings Make It Impossible for Numerous Peasants To Expand Investment in Reproduction

Only through repeated investment on the same tract of land is it possible to use modern science and technology to improve the land, to increase grain output and to improve the peasants' standard of living. The 20 million peasants in Heilongjiang Province earned only 243 yuan per capita from the growing of grain in 1984, just enough to maintain their livelihood and simple reproduction but not enough for investment. It is worth noting that accumulated peasant credit is increasing with each passing year. By 1985, accumulated peasant credit amounted to 2.96 billion yuan (400 million yuan of it being owed by 12 commodity grain bases). Rural commune member debt averages 102 yuan per capita or 16.6 yuan per mu of land, a 3.2-fold net gain over 1978. Peasant debt per capita is between five and six times the national average. Surveys show that in 1986 the province's rural areas needed 3 billion yuan for agricultural production, but were themselves able to provide only 1.29 billion yuan, a shortfall of 1.71 billion yuan, while the state was able to issue only an additional 900 million yuan in agricultural loans. Without agricultural loans, it would be very difficult for some peasants to maintain normal production. In recent years, increased peasant payments for rising means of production costs and for means of production price increases have generally corresponded with increases in the amount of state agricultural loans. It is by no means out of the ordinary for peasants to go into debt in order to farm the land. Unless this pattern of reliance on state loans for peasants to farm the land is changed, it will be very difficult to insure steady increases in grain production and to realize the Seventh 5-Year Plan goal of 38 billion jin of grain.

Nor is this all. Today, 20 percent of all peasant households in the province are needy households for which the problem of sufficient food and clothing has not been solved. Appropriate economic policies have to be adopted to help the peasants cure poverty so that the peasants, particularly those who rely primarily on the growing of grain to make a living, can steadily increase their earnings so that their enthusiasm for growing grain will be stirred.

Finally, there is another point that cannot be ignored. (1) As a result of overly low grain prices and low earnings, the grainfield area has declined drastically and the situation of peasants abandoning the land has become fairly serious. Surveys show a decline of 2.08 million mu in the grain-growing area between 1984 and 1985. For certain crops such as high-yielding corn, the decrease was 5.15 million. In 1985 alone, deserted land in the province totaled 5.2 million mu. (2) Basic investment in agriculture has dropped. Survey data from those concerned showed a 173,000-ton decline in the use of chemical fertilizer between 1984 and 1985, an 8.75-million mu reduction in the machine-farmed area, a drop of 130 million kWh in rural use of electricity and a loss of 0.03 to 0.05 percent in the soil's organic matter. Everywhere the soil has become "barren, hard, and shallow." These are all important elements restricting steady increases in grain output. They cannot be shrugged off; some strategic choices must be made.

III

Reform of grain prices to promote a steady increase in grain output to meet the needs of society. Grain is the foundation of agricultural production, and it is also the principal means of livelihood of all nationalities in the country. There is a direct correlation between equitable grain prices and equitable prices for other agricultural products, and a correlation with the level of prices for industrial products that use agricultural products for raw materials. Therefore, the proportional relationship among prices of agricultural products must be adjusted and planned around prices for grain. So, how can grain prices be reformed so as to benefit their leading position and so as to benefit the promotion of steady increases in grain output to meet the needs of society?

1. Straightening Out of Price Ratios For Various Kinds of Grain and Establishing a Grain Price System Centering Around Soybeans

Everyone acknowledges that the readjustment and planning of price ratios for agricultural products should center around the price of grain. The question is whether a center also exists for grain prices. We realize that grain prices should also have a center. The only problem is that in different places (provinces or prefectures) and at different times (the 1950's or the 1980's), the kinds of grain that should serve as the center are different. Take Heilongjiang Province, for example. During the Seventh 5-Year Plan, grain price reforms should center around soybeans, with the founding of a grain price system centering around soybeans. There is a basis for questioning this. a) The crucial changes in China's grain supply system during the early 1980's, which were occasioned by rural reforms, provided economic conditions for highlighting soybeans in the development of grain production in Heilongjiang Province. b) The state requirement that Heilongjiang Province be self-sufficient in five different grains and that it produce 4 billion jin of commodity soybeans for export set the social conditions for the province to become a soybean export base. c) Needs of the international market. The province's soybeans may be exported to the USSR, Japan, and all the countries of Southeast Asia. Forecasts call for a Soviet market within 10 years of approximately 6 billion jin per year of Chinese soybeans. d) The need for

soybeans (protein) by the country's 1 billion population is also a large market that cannot be overlooked. In short, Heilongjiang Province has the natural conditions, the socioeconomic conditions, and a wide market for the development of soybean production.

Nevertheless, after the price of soybeans revived from 0.30 yuan to 0.345 yuan in 1986, spurred on by economic benefits, peasant zeal for the growing of soybeans was considerable and peasant enthusiasm was truly stirred. At the same time, the price of soybeans also breeched existing price ratio relationships among grains, and new price ratio inequities appeared. Once the price for soybeans rose, per-mu earnings from wheat and corn, which were pegged to soybeans, declined 17 and 56 percent, respectively. Because of the earnings from soybeans, in some places the area sown to soybeans exceeded the appropriate percentage (25 to 30 percent), reaching as high as 40 to 60 percent of the area sown. Continuous cropping of soybeans and planting of soybeans as a followon crop reached serious proportion. Not only was this not in keeping with economic laws, it also contravened natural laws and did not permit good rotation of grain crops. Unless regulated at once, not only would the ecology have been damaged, but the entire operation of the grain economy could also have become unbalanced and the development of animal husbandry could be also have been adversely affected. The pressing problem of the moment was a strategic readjustment of price ratios for the various kinds of grain to make them equitable, readjusting them around the price of soybeans. The overall guiding thought had to be to use soybeans to promote development of all grain production and not to use soybeans to spike the production of all other grain. Only by so doing would it be possible to insure that soybean export quotas would be satisfied and to cause steady increase in grain production to meet the needs of society.

How was the regulation to be done? Generally speaking, it was done by raising procurement prices for wheat and corn, allowing operation of the market to regulate economic benefits obtainable from the growing of soybeans, wheat, and corn and readjusting the proportion of the soybean growing area, forming an equitable grain price ratio system centering around the price of soybeans. Naturally, this goal could not be achieved through sole reliance on market regulation. A second readjustment based on government (plan) market regulation had to be done. The specific method employed was to increase current procurement prices for wheat and corn by 10 and 20 percent. After a certain cycle, price ratio relationships for the various kinds of grain will be basically straightened out.

2. Converting Grain Production and Dealings to the Track of the Laws of Value

In 1985, China abolished command plans for grain production and the unified procurement system, instituting fixed-contract procurement instead. The major varieties and limits for state procurement are set, all in excess being permitted to be sold freely in markets. This marked a major reform in the grain procurement and marketing system. Procurement prices for grain included a combination of fixed contract prices, negotiated market prices, and guaranteed prices. The institution of market regulation under state plan guidance played an active role in enlivening grain circulation and in using price information to guide peasant organization of their production according

to the needs of the market and of society. Nevertheless, quite a few shortcomings remain in the grain procurement price system. Examples include price inversions, lack of equitable price differentials, overly low prices for grain, inequitable price ratios between grain and other agricultural products, a lack of vitality in the management system, etc. requiring further perfection and reform. It now appears that the supply of grain to cities is completely underwritten by the state, which is harmful for the infusion of life into the circulation process. The grain sector's procurement and marketing system should be reformed in order to reduce gradually the base figures for state fixed procurement of grain and to expand the amount of grain that is regulated by market forces. Restrictions have been lifted on millet and sorghum, and now they should be lifted on corn as well. Fixed-contract procurement should be used for soybeans to insure export supplies, and for fine grains [wheat and rice] to insure basic rations for cities. The supply of grain for rations and for shortfalls in needed state reserves should be handled through purchases at negotiated prices. Restrictions on grain for processing into livestock feed and on grain for industrial use should be lifted in groups and over a period of time. Henceforth, enterprises should sign contracts directly with peasants, and the savings resulting from reduction in the number of links in the business process should be awarded to the peasants by way of solving part of the problem of overly low prices paid to peasants for grain. Medium-size and small businesses that are unable to deal directly with peasants may temporarily be supplied by grain departments at negotiated purchase and marketing prices. A case in point is the distillery in Fuyuan County for which grain departments formerly brought in required corn from outside the province at between 0.70 and 0.80 yuan per jin. This year contracts were signed with the peasants directly. Though the price paid to the peasants increased by only 0.02 to 0.03 yuan per jin to between 0.15 and 0.16 yuan, the peasants became interested in growing corn. By doing things this way, not only is it unnecessary for the state to put up a lot of money, but middleman expenses can be saved as well, thus killing many birds with a single stone and gradually putting grain farmer production and dealings on the track of the laws of value.

In summary, we have to look with clear eyes at the problems in grain prices and fully understand the strategic significance of prices in the expansion of grain production. We have to consciously rely on and apply the laws of value to reform grain prices so that they become effective levers that help bring about economic benefits, social benefits and ecological benefits from grain production, and that advance stable growth of commodity grain production.

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AGRICULTURE

HEILONGJIANG MEASURES TO INCREASE GRAIN, SOYBEAN PRODUCTION

Beijing RENMIN RIBAO in Chinese 2 Feb 87 p 1

[Article by Tan Peiquan [6223 0160 0356]: "Heilongjiang Focuses on Increasing Grain and Soybean Yields"]

[Text] Measures are being taken to boost grain production in Heilongjiang. Currently a drive is under way throughout the province to fulfill this year's agricultural production plan centered on commodity grain and soybean in order to push agricultural output to a new high.

The Seventh 5-Year Plan calls for total grain output in Heilongjiang to climb to 19 billion kilograms by 1990. Taking the 1986 output of 16.5 billion kilograms as the base, grain output must expand 625 million kilograms annually over the next several years. To accomplish this mission, Heilongjiang recently convened a provincial agricultural working conference which came up with four measures to increase grain output in 1987:

-- establish two bases. The state has decided to invest in the construction of a soybean export base and grain production base during the Seventh 5-Year Plan. The province has selected 65 farms in 24 municipalities and counties as soybean production bases and 31 municipalities and counties as grain production bases. Together with commodity grain bases already in existence, the province now has 57 municipalities and counties designated as either grain or soybean production bases, which make up 82 percent of all municipalities and counties in Heilongjiang. Jurisdictions designated as bases are working out plans and making mighty efforts to improve technical services and facilities and agricultural production conditions, raise grain and soybean yields and quality, and increase the capacity for sustained production and the ability to export and earn foreign exchange.

-- further adjust the crop mixture. After years of adjustment, the crop mixture has become more appropriate. Adjustment this year centers on stabilizing the areas sown to wheat and soybean and increasing the areas devoted to high-yield grains. Projections call for planting a total of 29 million mu with wheat and 33 million mu with soybean. Three million more mu will be planted with such high-yield crops as corn and rice compared to last year.

-- vigorously disseminate agricultural technology to increase yields. A tremendous effort will be made to disseminate comprehensive yield-increasing

technology, focusing on standardized cultivation and protected-area cultivation. In recent years, such technologies as the use of drought-resistant and moisture-retaining seedlings, the prevention and treatment of plant diseases and insect pests, and protected-area cultivation have effectively boosted yields and been adopted extensively throughout the province. Advanced technology and high-yield practices will be introduced to more farmland this year than a year ago.

-- devote major efforts to carrying out the cropping system comprising the "three systems and one construction." The "three systems" refer to a crop rotation system revolving around soybean, a cultivation system under which farmland is sown with different crops every 3 years, and the system under which fertilizers are applied in turn to preserve soil fertility. "One construction" refers to intensifying basic farmland construction. This means adopting engineering, biological, and agronomical practices tailored to the conditions of each particular region, particularly the prevention of flooding in the east, drought in the west, desertification, and alkalization, and searching for ways to treat different types of low- and medium-yield farmland so that the 50 million mu of such land in the province can gradually be upgraded in the near future.

12581

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AGRICULTURE

HEILONGJIANG GRAIN PRODUCTION IN NEW DEVELOPMENT STAGE

OWC31036 Beijing XINHUA in English 0716 GMT 3 Feb 87

[Text] Harbin, 3 Feb (XINHUA)--Grain production in northernmost Heilongjiang Province known as China's "granary" has entered into a new stage of development, according to the Heilongjiang provincial agrotechnique popularization center. The new stage is characterized by intensive farming and application of advanced agrotechniques on large tracts of land.

For decades, the province has engaged in extensive farming and increased production by reclaiming land.

The province harvested 16.5 million tons of grain, soybeans and potatoes in 1986 although it was hit by natural disasters and the acreage of cultivated land decreased. This was the third year the total grain output exceeded the 15-million-ton mark after the family-based contract system was introduced in 1983. The per hectare output averaged about 7,500 kilograms, a record for Heilongjiang which plants only one crop a year.

An official from the agrotechnique popularization center told XINHUA that the province applied 129 advanced techniques on 5.766 million hectares, the greatest number of new cultivation techniques ever applied in the province. As a result, the per hectare yield of corn on 340,000 hectares came to 6,795 kilograms and that of rice on 57,000 hectares came to 7,575 kilograms. The spread of the standard cultivation method boosted the per hectare yield of soybean to 2,370 kilograms and that of wheat to 3,000 kilograms. Other techniques included sparse planting of rice with seedlings cultivated on dry land, transplanting of corn seedlings and plastic film covering technique.

Heilongjiang has large tracts of virgin land. Starting in the 1950s, the state began to organize migrants and send large numbers of demobilized soldiers to reclaim the land and established a large number of state farms. Over the past three decades, more than five million hectares of land have been reclaimed and grain output increased from seven million tons to 14 million tons.

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CSO: 4020/140

AGRICULTURE

JIANGSU WATER CONSERVANCY PROGRESS REPORT

Nanjing XINHUA RIBAO in Chinese 20 Oct 86 p 1

[Article by Huang Guifang [7806 2710 5364] and Zhou Xudong [0719 2485 2639]: "Jiangsu Water Conservancy Work Begins Early, More Inputs, Things Are Looking Good; Strengthen Material Foundation So That Agriculture Can Start On a New Path to the Top"]

[Text] Every aspect of farmland water conservancy integrated with fall planting has started, about one or two months earlier than in previous years. For days now, cities, counties, and townships have all been organizing, initiating, dividing up, and implementing each level of earthwork duties. Moving fast, Yangzhou City has dredged and opened 3,234 stretches of "the three channels," and completed 8.48 million cubic meters of earthworks. Binhai and Gaochun counties have been quick to mend any breach as embankments are repaired, and key farmland water conservancy projects are underway. Investment and construction agreements worth a total of 3.45 million yuan have been signed for the river straightening project at Luojiadu on the Qinhuai River and the dredging project on the Huangli River within Wujin County. By the 17th, Jiangsu had completed 17 million cubic meters of earthworks.

According to local plans, in winter and spring Jiangsu will finish 700 million cubic meters of earthworks for rural water conservancy, build more than 60,000 structures (not including ditches and other simple projects), transform 700,000-800,000 mu of low-yielding fields, and add or improve irrigation on 5 million mu of land. The number of projects and the results to be achieved will exceed those of the past few years. This will strengthen the material basis for Jiangsu agriculture's new pathway to the top.

Many areas in Jiangsu have been "flood water corridors." Since liberation, all people in the province have struggled amid difficulties, providing large amounts of manpower and materials to build water conservancy projects. In recent years, due to reduced inputs into water conservancy and a loosening in project management, many project installations have aged and are operating with defects and lower efficiency. In the face of this problem, the provincial Party committee and provincial government have called upon all people in Jiangsu to revive traditions, dig more earthworks, and build more projects. They have also decided to raise investment next year in water conservancy capital construction to 40 million yuan, twice as much as this year. Recently, revenue departments in each city, county, and township are

also in the process of planning increased investments in water conservancy projects. Some counties and townships have plans for allocating a portion of the grain subsidies for use in water conservancy. Huaiyang City has even decided to allocate 10,000 tons of cement, 500 tons of steel products, 500 cubic meters of lumber, and 50 tons of conducting wire to support rural water conservancy construction.

In order to stir up enthusiasm among all circles in water conservancy construction, this year new methods, such as sharing the responsibility at different levels and cooperative construction, are being practiced throughout the province. Waterway projects which span two or more cities are run by the province; projects which directly benefit an entire city or county are run by the city or county on its own; farmland water conservancy projects within a county or township are run by the county, township, and the masses who are benefitted. Project responsibilities are divided among villages, groups, and households. There is centralized planning of projects which serve agriculture and also serve industry, transportation, urban water supply, hydroelectric, and other departments. The benefitting units jointly fund and run the project. The province also instituted a system for contributing labor, stipulating that every able-bodied person in the countryside should annually provide 10-20 days of labor on farmland water conservancy.

12919

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AGRICULTURE

JIANGXI PLANS RECORD GRAIN OUTPUT FROM SPRING PLANTING

Beijing NONGMIN RIBAO in Chinese, 9 Feb 87 p 1

[Article by Correspondent Li Dongchu [2621 2639 0443]: "Jiangxi Takes Practical Steps In an Effort To Increase Grain Output Greatly During 1987." Stabilizes Grain Growing Area, Tries Hard To Increase Yields and Strives To Do a Good Job in Providing Services"]

[Text] Jiangxi Province has taken effective steps to maintain a firm grip on grain production in an effort to increase gross output for 1987 to 3.15 billion tons, an all-time high record.

In order to bring about a tremendous increase in grain for 1987, Jiangxi first stabilized the grain growing acreage to insure that the area sown to grain in the province for 1987 would remain at 55 million mu. It also devoted efforts to increasing the multiple cropping index. The whole province has made full use of fields that ordinarily lie fallow during autumn and winter, planting nearly 1 million mu to dryland crops including soybeans, wheat and corn in a major effort to grow several dryland crops, to intercrop and to companion crop. No longer will it be permitted to dig up good fields for fishponds or to plant them to perennial fruit trees.

Second, the province has made a strenuous effort to increase grain yields. Jiangxi has 6 million mu of low yield fields. Beginning in the winter of 1986, all jurisdictions in Jiangxi took advantage of the slack winter season to build water conservancy facilities, to clear mountainlands and open ravines, to expand the growing of green manure, and to increase applications of organic fertilizer in the active transformation of low yield fields. All parts of Jiangxi offer advantages for outstanding increases in yields from hybrid rice, and all areas have launched the building of "10,000 mu/ton fields" centering around the growing of hybrid rice. They have also used these high yield fields to spark and energize the technical transformation of large areas of medium and low yield fields and to give impetus to balanced yield increases. All trades and industries in Jiangxi proceeded from the overall situation of reserve strength resulting from increased yields and harvests in agriculture to readjust their own positions for rendering support to agriculture and strengthening the service system for agriculture. Currently, all jurisdictions in the province have either done or are in process of doing large amounts of work to prevent or control diseases and insect pests, to get

rid of poorly resistant varieties, to popularize seed processing, to do a good job of forecasting and advance reporting of diseases and insect pests, and to provide funds, materials and skills. Despite a shortage of public funds during 1987, investment in capital construction for agriculture throughout the province amounted to 63.69 million yuan, an 11.7 million yuan increase over 1986. This has meant a rise in the percentage of investment from 18.9 percent in 1986 to 23.2 percent in 1987. All jurisdictions started earlier than in 1986 and have done a solid job in the movement of the means of production needed for spring farming such as medium and small farm implements, chemical fertilizer, diesel fuel, explosives and ground mulch. In Jiujiang Prefecture, all the chemical fertilizer to be applied has been brought in and is now being moved to townships and villages.

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AGRICULTURE

JIANGXI FARM MACHINE SALES TO CONTINUE STEADY RISE IN 1987

Beijing ZHONGGUO NONGJIHUA BAO in Chinese 10 Jan 87 p 3

[Article by Pan Wei [3382 0251] and Lie Liu [3525 2692]: "Farm Machine Sales To Increase in Jiangxi During 1987"]

[Text] As a result of the institution of production responsibility systems, agricultural production has developed fairly rapidly in hardship areas of Jiangxi Province in recent years and grain output has increased year by year. In 1985, gross output of grain broke the 15 billion jin [guessing unclear statistic in text] mark for an all-time record. The cash crop harvest was also a fairly good one. Gross output of oil-bearing crops reached 5,776,800 dan, up 17.64 percent from 1984; gross output of tea was 285,800 dan, up 5.03 percent from 1984; and gross output of cotton declined slightly from 1984 with a gross output of 1,244,000 dan. Despite advances in agricultural production, the level of agricultural mechanization for the province as a whole remained low. In 1985, only 19.20 percent of the province's total cultivated area was machine farmed. Except for the fairly high degree of mechanization of drainage, irrigation and threshing in paddy rice production, little machinery was used in other operations including transplanting, harvesting and hauling. In some remote mountain villages in Ninggang and Yongxin counties, which have long been without electricity, the peasants continued as in the past to use antiquated production methods such as falling water to grind grain, oil for lighting, and oxen to farm their fields. Consequently there is a substantial farm machinery market in the province as a whole.

In 1985, the farm machinery market throughout the province flourished. By early October, farm machinery net sales figures were 16.4 percent higher than in 1984. This included a 27 percent rise over the same period during 1984 in sales of farming and hauling machinery. Sales of power machinery and of drainage and irrigation machinery were 30 percent higher than during the same period in 1984. Sales of machinery for processing agricultural and sideline products were 19 percent higher than for 1984. Sales of semi-mechanized manpower-operated vehicles rose 4.4 percent over the same period in 1984. Sales of spare parts for the repair of farm machines increased 3.9 percent over 1984. In Ganzhou and Yichun prefectures and in Nanchang City, farm machine company sales of farm machinery rose over the same period in 1984. Farm machinery system profits for the province as a whole were 515,000 yuan greater than during the same period in 1984 for achievement of the goal of

"slightly higher than" the previous year. Small, premium quality, multi-purpose farm machines and implements made in Jiangxi Province such as the Dongfeng Model 12 hand tractor, the Lushan Model S-195 diesel engine, and the Ganjiang Model 12 and Fengshou Model 2015 trucks were very well received by the peasants.

Orders placed at the 1987 provincewide Farm Machine Products Ordering Fair held in Nanchang City in early October 1986 showed a continued rise in demand for hand tractors, small diesel engines and hauling vehicles used in agriculture, and a market for water pumps, rice milling machines, pulping machines and oil pressing machines. Demand for repair parts has risen, and demand for handcarts and semi-mechanized farm implements has climbed again. This analysis shows a trend toward steady increase during 1987 in production and sales of farm machinery in Jiangxi.

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AGRICULTURE

SHAANXI GRAIN PRODUCTION FORECASTS

Xian SHAANXI NONGYE KEXUE [SHAANXI JOURNAL OF AGRICULTURAL SCIENCES] in Chinese No 1, 25 Jan 87 pp 9-12

[Article by Ning Mingyang [1337 2494 2799], Bai Zhili [4101 1807 4409], Zhao Zhixian [6392 1807 6343] and Wang Qing [3769 7230], Shaanxi Provincial Agro-economics Institute and Shaanxi Provincial Agricultural Planning Institute, and Zhang Baiming [1728 4102 7686], Agriculture Department, Shaanxi Provincial Planning Commission: "Forecast of Prospects and Study of Plans For Shaanxi Province's Grain Production"; first paragraph is source-supplied summary]

[Excerpt] Summary

Planning employs index curve measurement, gray systems theory measurement and conventional planning, their average values serve as plan goals. By 1990 and 2000, the province's total grain output will reach 10.9 million tons and 14.15 million tons respectively, or 346.5 kg and 407 kg per capita for the realization of a high level of self-sufficiency with a surplus. Nevertheless, southern Shaanxi will still have a shortage requiring adjustments. Measures for regularizing goals are as follows: Population control and economization of cultivated land; mutually reinforcing farming and animal husbandry and a combination of the organic and the inorganic to nurture soil fertility; building of commodity grain bases; and application of the newest science and technology to build the ecology.

History and Present State of Grain Production

I. Historical Evolution

A. Balance in Grain Supply and Demand. From 1949 through 1952, supply and demand within the province were balanced. Thereafter and through 1963, Shaanxi was a grain exporting province. From 1964 through 1982, with the exception of 1967 and 1976, the province imported grain from other provinces. Since 1983, grain output has increased greatly and the province has again become self-sufficient with a surplus. Gross output increased from 3.31 million tons in 1949 to 10,235,000 tons in 1984, a net increase of 6,925,000 tons or a 3.1-fold increase. Grain yields rose from 251.5 kg to 345 kg per mu in a 37.2 percent increase

B. Pattern of Change in Gross Output. Gross output was 4,605,000 tons during the 1950's, 4,905,000 tons during the 1960's, 7,505,000 tons during the 1970's and 8.82 million tons for the first 5 years of the 1980's. The breakthrough years of increased output occurred mostly during the middle of each decade, and the low output years occurred mostly during the early part of each decade. The appearance of this pattern in close relationship to the rhythm of weather changes served as important reference data for the pre-stressing of future grain production operations.

Evolution of the grain production system has been subject to the control of natural and economic laws, so delineations based solely on decades cannot be made. Five stages (Table 1) may be charted on the basis of trends (growth curves) for rises and falls and a fluctuating actual rise in gross output.

Table 1. Stages in Shaanxi Grain Production Units: Million Tons

Stages	1949-1952	1953-1964	1965-1973	1974-1981	1982-1984
Number of years	4	12	9	8	3
Average annual yield	3.805	4.57	6.07	7.965	9.715
C.V. %	9	10	11	6	4

Table 1 shows a steady rise in the amount of increase in each stage, a gradual shortening of the number of years in each stage, and also an increase in the general trend toward consistent yields. This reflects the historical situation in Shaanxi Province for 35 years, and it is also a concrete expression of the accelerated change in various production conditions and technical measures and of the conscientious implementation of all agricultural policies.

C. Analysis of the role of major elements in production shows that if average figures from the whole province for the first 5 years of the 1950's and for the most recent 5 years of the 1980's are compared, despite the steady reduction in the amount of cultivated land (a 300,000 mu per annum reduction), and of grain growing cultivated land (a 390,000 mu per annum reduction), gross output rose from 4,355,000 tons to 8.82 million tons in a 2.03 fold increase for an average annual 2.4 percent increase. Increase in gross output of grain was 61 percent attributable to central Shaanxi, 23 percent attributable to southern Shaanxi and 16 percent attributable to northern Shaanxi. Grain yields rose from 74.5 kg to 195.5 kg per mu of cultivated land in a 2.6-fold increase. Clearly the increase in gross output derived primarily from increases in yields.

Use of multiple regression analysis of the role played by various elements in grain production shows increased use of chemical fertilizer responsible for 45 percent, organic fertilizer responsible for 27 percent, irrigation facilities responsible for 14 percent, and other techniques aggregately responsible for 14 percent. It appears that the use of organic and inorganic fertilizer, and increased application of chemical fertilizer played key roles.

II. Current Status and Problems

Grain output for the whole province in 1984 was 10,235,000 tons, up 35.2 percent from the 7.57 million tons of the plan base period year (1980). Per capita grain output was 351.5 kg for central Shaanxi, 330 kg for southern Shaanxi and 337.5 kg for northern Shaanxi. Three prefectures achieved varying degrees of self-sufficiency or a surplus. Nevertheless, the following several problems remain in grain production today:

A. Rather poor ability to withstand disasters. Of the 82.82 million mu of cultivated land in the province, wetlands and irrigated land amounts to 20.13 million mu or only 24.3 percent. There is 62.69 million mu of drylands or 75.7 percent. This includes 12.86 million mu, or 15.5 percent of hillsides with a gradient of 25 degrees or more. Ability to withstand disasters is very poor; it is the most outstanding problem in grain production throughout the province.

F. In quite a few prefectures, attainment of self-sufficiency in grain remains difficult. Using 300 kg of grain per capita as the self-sufficiency line, 20 counties with a rural population of 4.24 million, or 17 percent of the province's total population, is unable to attain self-sufficiency. Two-third of these are in the Qin and Bashan areas and one-fourth are in northern Shaanxi.

C. Grain for industrial use does not suffice. It is still difficult to achieve self-sufficiency in sorghum and barley, raw materials used by the brewing industry. Buckwheat, black rice, basmati rice, and cun [1407] paddy rice for the foreign export trade are also far from being able to satisfy demand.

D. The production and business situation also tends to be changing for the worse. After the contracting system was instituted, quite a few peasant households concurrently engaged in industry and commerce and it became common for land to be cultivated no longer. In addition, farmland water conservancy was not maintained and the irrigated area declined. Cultivation became non-intensive, impounding of water and conservation of soil moisture faltered, diseases and insect pests increased, and fine varieties were lacking, all of which seriously threatened increases in grain yields.

Forecasts on The Development of Grain Production and Thoughts on Planning

I. Calculating Society's Grain Needs. Society's needs include mostly grain for daily consumption (including grain converted to livestock products), seed grain, grain for industrial use and grain for foreign trade. In light of the ideas proposed by the Chinese Academy of Agricultural Sciences for readjustment of the diet in 1990 and 2000, the following standards are recommended for the province:

Table 2. Plans For the Shaanxi Diet in 1990 and 2000

Units: Kg/per person

Particulars	1980	1990		2000	
	Shaanxi	National	Shanxi	National	Shaanxi
Unprocessed Food Grain	231.0	246.5	240	214	230
Meats	8.3	16.5	14	26.5	25
Eggs	1.2	5.3	4.5	11	10
Milk	2.1	11	10	25	22.5

At an annual rate of increase of 0.01 percent, by 1990 the population of Shaanxi Province will reach 31.48 million; in 2000, it will be 34.77 million. In 1990, 7,555,000 tons of unprocessed food grain will be required for consumption. The livestock products return on fodder during the Seventh 5-Year Plan is 1 kg of meat or eggs per 4 kgs of grain consumed, and 1 kg of milk per 0.5 kg of grain consumed. Thus, figured in terms of population, 2,485,000 tons of grain will be required for livestock products (the current amount is 700,000 tons). Together, these two items total 10.04 million tons. In addition, 580,000 tons of grain will be needed as seed, and grain needs for industrial purposes will increase to 200,000 tons, (currently 100,000 tons are required) for a total requirement of 10.82 million tons, or 343.5 kg per capita. In 2000, directly consumed unprocessed food grain will come to 7,995,000 tons. At a rate of 1 kg meat or eggs per 3.5 kgs of grain consumed and 1 kg of milk per 0.4 kg grain consumed, 457,000 tons of fodder will be needed for livestock products. The need for seed grain will rise to 600,000 tons as a result of the expansion of multiple cropping, and further industrial expansion will require 700,000 tons of grain for industry. The total grain requirement will be 13,865,000 tons or 399 kg per capita.

C. Conventional Planning. The province's 82.82 million mu of cultivated land (12.86 million mu of which is on slopes with a gradient of 25 degrees or more) reported as the result of a zoning survey serves as basic data for planning. Before 1990, 5.4 million mu of fields on slopes will be withdrawn from cultivation, and an additional 300,000 mu will be used each year for city and town construction (figured on the basis of the average 5-year decrease in cultivated land since the founding of the People's Republic), meaning a decrease of 1.8 million mu of cultivated land by 1990 for an actual 75.62 million mu of cultivated land. Before 2000, another 7.46 million mu of land will have been withdrawn from cultivation, 2.7 million mu having been used for the building of cities and towns and for industry and transportation (figured at a controlled annual decrease of 270,000 mu), i.e., actual cultivated land will be 65.46 million mu. In 1984, the ratio of grain to cash crops and other crops was 81 to 19, so verified calculation of land used for the growing of grain is 67.08 million mu. By 1990, the ratio of grain to cash crops and other crops will have been adjusted to 77 to 23, with grain growing on 58.23 million mu. By 2000, the ratio will have been adjusted to 72 to 28 so the actual amount of cultivated land used for the growing of grain will be 47.13 million mu. Using verified grain growing land in calculations, grain yields in 1980 were 113 kg per mu; in 1984, they were 152.5 kg.

III. Forecasting Plan Results. Inasmuch as statistical data have not been collected in entirely the same way for the whole province and for the three different kinds of areas, and because of differences in the way data have been processed, there are slight differences in results from the various methods used to make calculations; consequently, average values have been used as plan goals.

Table 3. Shanxi Province Grain Production Forecast Plans
Units: 10,000 tons

	1900					
	Province Data Plan 1	Central Shaanxi 2	Southern Shaanxi 3	Northern Shaanxi 4	Total 5	Average (1+5)/2
Particulars						
Exponential Model	1,075	650	280	150	1,080	1,080
Grey Model	1,070	665	280	155	1,100	1,085
Traditional Method	1,110	670	285	150	1,105	1,110
Average	1,085	660	280	150	1,095	1,090
Total Population (10,000)	--	1,843	872	433	--	8,118
Grain Per Capita (kg)	--	358	321	3,465	--	346.5

Note: Underlined figures are plan goals.

2000						
	Province Data	Central	Southern	Northern	Total	Average
	Plan	Shaanxi	Shaanxi	Shaanxi		
	1	2	3	4	5	(1+5)/2
Particulars						
Exponential Model	1,395	855	350	215	1,420	1,410
Grey Model	1,420	840	350	225	1,415	1,415
Traditional Method	1,410	900	325	210	1,435	1,425
Average	1,410	865	340	215	1,420	1,415
Total Population (10,000)	--	2,063	963	478	--	3,477
Grain Per Capita (kg)	--	425	353	450	--	407

Note: Underlined figures are plan goals.

Gross output for the whole province in 1990 is forecast at 10.9 million tons versus 7.57 million tons in 1980, up 44 percent in an annual incremental increase of 3.7 percent. Grain yields for 1990 are forecast at 187 kg per mu of cultivated land versus 113 kg in 1980, up 65.5 percent in an annual 5.2 percent incremental increase. By 2000, gross output should reach 14.15 million tons, up 29.8 percent from 1990 in an annual 2.5 percent incremental increase. Grain yields are forecast at 300 kg per mu of cultivated land for a 60.4 percent rise and an annual incremental increase of 4.8 percent. If the province's grain requirements in 1990 total 10.82 million tons as was explained previously, the forecast output would leave 80,000 tons available for other purposes; however, the province would still be at a fairly low level of self-sufficiency. By the year 2000 when the requirement will be for 13,865,000 tons, a surplus of 285,000 tons would be available as a reserve or for foreign trade. A fairly high level of self-sufficiency will have been reached. There will be an abundance with some surplus.

The amount of grain per capita for the whole province in 1990 and 2000 will be 346.5 kg and 407 kg respectively. For central Shaanxi, southern Shaanxi and northern Shaanxi, the figures for 1990 will be 358 kg, 321 kg and 346.5 kg respectively. By the end of the century, the figures will be 425 kg, 353 kg and 450 kg respectively. Using 343.5 kg and 399 kg per year as basic per capita needs in 1990 and 2000, calculations show that central Shaanxi and northern Shaanxi will be able to attain balanced self-sufficiency with a surplus within the region. Southern Shaanxi will be grain-short and continue to require adjustments.

Basic Actions To Realize Plan Goals

I. Strict Population Control and Economization of Cultivated Land. Solution to the conflict between grain output and needs in the face of natural population increase and steady decline in the amount of cultivated land will require economies in the use of cultivated land as well as strict control of population growth at 0.1 percent or below.

II. Improvement of Basic Production Conditions and Improvement of Cultivated Land Quality.

A. Good management and use of existing water conservancy facilities and expansion of new irrigation area. There are presently 17.94 million mu of wetlands or irrigated land in the province, the irrigated area amounting to between 12 million and 13 million mu. By the end of the Seventh 5-Year Plan period, the effectively irrigated area will be maintained at 18 million mu and it will reach more than 19 million mu during the 10 years thereafter.

B. Bolstering of soil and water conservation bringing small basins under control. This includes an expansion of the "four fields" area, a combination of forests, bushes and shrubs, and grass to conserve soil and water, and the building of consistently high yield fields at the rate of 2 to 2.5 mu per capita for the realization of high yields and an abundant harvest to insure grain self-sufficiency.

C. Transformation of saline, alkaline and low yield soils. In central Shaanxi, both new and old irrigation areas have become saline; there is approximately 1 million mu of low-lying soggy land; and water stands on a 63,000 mu area. Urgent actions should be taken to drain this land for use. Along the Great Wall in the western part of the windblown sand area, there are approximately 3 million mu of saline-alkaline flats. Study of way to develop this land for use holds major significance for the development of agriculture in the northern part of the province. Southern Shaanxi has about 3 million mu of low yield yellow clay fields requiring further research for means to improve it.

III. Soil Improvement With Soil Use, Mutually Complementary Farming and Animal Husbandry, and a Combination of the Organic and the Inorganic to Foster Soil Fertility. A soil survey puts the low yield field area in all counties at more than 60 percent and a general lack of the growing of crops such as pulses that improve the soil, which directly hurts a combination of farming and animal husbandry and the accumulation of organic matter in the soil. In 1983, an average of 27.7 kg per mu of chemical fertilizer was used versus the 50 kg per mu average for the country as a whole, a difference of nearly one-half. During the 1970's, the nitrogenous fertilizer utilization rate was between 36 and 60 percent. During the 1980's, it declined to between 30 and 36 percent, and the 12 to 20 kg increase in grain yields per kilogram of nitrate fell to between 10 and 12 kg. The use of blended fertilizers and scientific use of fertilizer will have to be promoted in the future together with an increase in the use of pulses and fodder grasses, and farming in combination with animal husbandry to increase soil fertility. On the basis of the needs of grain for nutrients, in 1990 the total amount of chemical fertilizer needed will be 2.36 million tons (2.03 million tons of it for grain); in 2000, 3.59 million tons will be needed (2.63 million tons of it for grain). Fertilization will increase to 36 kg per mu in 1990 and to 58 kg in 2000 for the province as a whole.

IV. Full Use of Advantages To Build Different Kinds of Commodity Grain Bases

A. Equal emphasis on the growing of wheat and autumn harvested crops at the central plain irrigated area commodity grain base. This region has 16.53 million mu of cultivated land of which 78.4 percent is wetlands and irrigated land. By 1990, 11,272,000 mu of grain land will produce yields of 415 kg per mu for a gross output of 4.68 million tons, or 385 kg per capita (grain ration, livestock feed, seeds and other). Calculations show that after rural needs have been met, 1,115,000 tons of commodity grain will be available. In 2000, 10,778,000 mu of grain producing yields of 576.5 kgs per mu will produce a gross output of 6,215,000 tons of which 2,125,000 tons will be available as commodity grain.

B. The Weibei Dryland Plain Premium Wheat Commodity Grain Base. This area has 16,398,000 mu of cultivated land. In 1990 and 2000, the grain growing area will be 10,427,000 mu and 10,043,000 mu respectively. Grain yields will be 223.5 kg and 282.5 kg per mu respectively, and gross output will reach 2,330,000 and 2,840,000 tons respectively. After withholdings to meet local needs, 495,000 tons will be available as commodity grain in 1990 and 700,000 tons in 2000.

C. The Central Han Basin Paddy Rice Commodity Grain Base. This area has 3,497,000 mu of cultivated land, 53.5 percent of which is wetlands or irrigated land. In 1990, the grain growing area will be 2,529,000 mu, with yields of 489 kg per mu for a gross output of 1.15 million tons. In 2000, 2,337,000 mu will grow grain with yields of 577.5 kg per mu for a gross output of 1.35 million tons. Available commodity grain will amount to 245,000 tons and 310,000 tons respectively.

Once the aforementioned three commodity grain bases have been built, gross outputs for 1990 and 2000 will amount to 8.16 million tons and 10,405,000 million tons respectively, which will be 74.9 percent and 73.5 percent respectively of the province's gross output. Commodity grain will reach 1,855,000 tons and 3,135,000 tons respectively.

V. Active Development of Grain Production Science and Technology

1) Reform of the science and technology system, with the building of grain crop scientific research organizations characteristic of individual grain growing areas. 2) Improvement of the breeding and spread of fine varieties and shortening of the cycle for replacing varieties. 3) reform of cultivation techniques. During the Seventh 5-Year Plan, a series of key points for farming techniques should be proposed for different regions, and they should be converted to productivity as soon as possible. 4) Strengthening of plant protection work; control of damage and losses from diseases, insect pests, rodents and animals; development of new pesticides, new apparatus for applying them, and advice on effective measures for prevention and control. 5) Suiting of general methods to local situations for the popularization of plastic film ground cover cultivation techniques for a gradual extension of the use of plastic film to the growing of crops such as corn and tubers of various kinds.

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AGRICULTURE

RESOURCE CRISIS, ECONOMIC PROBLEMS BESET SICHUAN FORESTRY

Beijing ZHONGGUO LINYE [FORESTRY OF CHINA] in Chinese No 11, Nov 86 pp 34-35

[Article by Fu Daozheng [0102 6670 2398]: "Senior Sichuan Forestry Official Discusses Resource Crisis"]

[Text] The most basic reason for the resource crisis and economic quagmire in which forestry enterprises find themselves is the adoption of a system and the execution of reforms inconsistent with the characteristics of the forestry industry and its economic laws. The inconsistency mainly manifests itself in these five ways:

1. The birth and deterioration of the resource crisis initially had to do with the planning system and management system, specifically the divorce between the two. Later, as resources began to be depleted, logging was stepped up, which, in turn, only exacerbated the resource depletion. The result was a vicious circle which deepened the resource crisis.

When a forestry enterprise is set up, it usually has a projected production capacity and projected years of operation. When the state hands down a plan, however, it often puts the supply-demand gap before everything else and exceeds the projected production capacity, resulting in a planned over-logging. Subsequent demands for output increases also push logging over the plan. After this goes on for a number of years, resources naturally decline sharply. Such is how the resources in the state-owned forest region in Sichuan came to be exhausted. There was a total of 149,185,000 cubic meters of exploitable reserves in the operating areas of the 11 forestry enterprises in Yaba Prefecture, representing 81.2 percent of all exploitable resources in the prefecture. By the late 1970's, the reserves were exhausted. The 11 enterprises in the prefecture produced 41.78 million cubic meters of timber over the past 3 decades, consumed resources totaling 114,483,000 cubic meters. Only 34,705,000 cubic meters of reserves still remain, with a yield of 11,272,000 cubic meters of timber. Eight enterprises have exhausted their resources and can go on for just 4 or 5 years. In an even worse shape and unable to carry on are five enterprises in the forest region in southwestern Sichuan--Liangbei, Puwei, Yanbian, Chuannan, and Leibo--and two enterprises in Ganzi Prefecture--Luhuo and Daofu. Except for a small amount of exploitable resources in Ganzi Prefecture, with an annual yield of 600,000 cubic meters, Sichuan is now devoid of resources.

Unsound economic policies not suited to the characteristics and economic laws of the forestry industry are the primary root cause of the economic crisis in the forestry industry.

Two major shortcomings have existed for years in the economic system of the forestry industry. First, only the costs of logging the trees and transporting the timber are calculated, while the costs of reforestation are left out of account. Thus human labor and material labor consumed by reforestation are not duly compensated, making resource reproduction impossible. It has been estimated that it costs between 102.1 to 120 yuan to cultivate enough commercial forest to yield 1 cubic meter of timber in the mountainous forest region in Sichuan. Currently the reforestation fee is 20 yuan per cubic meter, only one-sixth to one-fifth of the costs of reforestation. In terms of management systems, logging and exploitation are managed commercially, while resource reproduction is treated bureaucratically. Thus two systems and two management methods are imposed on what is really a closely-linked production cycle. The result is two-fold: a fast circulation of resource exploitation and a slow circulation of reforestation. Moreover, inadequate inputs have combined with under-commercialization to make sure that resources are not renewed in time. A third problem is that tax policies and financial policies fail to take into consideration the special characteristics of forestry enterprises and instead treat them like ordinary industrial enterprises. Forestry enterprises operate under production limits. Yet they are still evaluated largely by such economic targets as log output and the amount of profits turned over to the authorities above. All this only prompted the enterprises to do more logging. After a new system was instituted under which enterprises pay taxes instead of turning over profits, the management system became severed from the financial system, resulting in a situation where the state demands timber, the treasury, profits, and the masses, incomes, with the enterprise struggling to survive in the midst of a worsening vicious circle defined by a resource crisis, over-staffing, and economic difficulties.

3. Under an irrational pricing policy, timber prices have seriously deviated from value. This deviation expresses itself in two major ways. First, the costs of reforestation are basically not taken into account and not compensated. Thus something is missing from the price structure. Second, prices do not correctly reflect the costs of logging and transporting timber. In 1980, the costs of logging and transporting one cubic meter of timber in Sichuan stood at 55.98 yuan. By 1985, the figure had risen 65 percent to 94.35 yuan due to inflation, changes in the production conditions of enterprises, the difficulty and distance of the terrain that has to be covered, and rising costs. Add the 102.1 to 120 yuan in reforestation costs, and you have a total sum between 196.45 to 214.35 yuan, higher if the timber is transported over land. Why do some enterprises still manage to make a profit? For one thing, they turn over to the higher authorities some of the forest development monies as "profits." These are "bogus profits." For another, enterprises are allowed to keep and sell a quantity of timber at market prices. This they market as "all purpose timber" at high prices. If these two elements are discounted, Sichuan's 24 forestry enterprises would all be losing money.

4. Under-investment has led to a serious mismatch between logging and reforestation, between production and capital construction, and between production and living.

A total of 24 forestry enterprises have been set up in Sichuan since the founding of the PRC, with a combined timber production capacity of 2.91 million cubic meters at one point. Projected state investments were 1,054,485,000 yuan, of which only 50.1 percent, or 528.39 million yuan, had actually been invested as of late 1985. Since the state did not invest in the industry as planned, the industry made do with the enterprises already built. This is rare in other sectors. After timber logging was deregulated in collective forests last year, a new investment method "tying money to timber" was adopted. As a result, investments dropped almost one-half, from 48.3 million in 1984 to 13 million yuan. Because of severe under-investment, enterprises cannot carry out construction to ensure future operations. To maintain normal production, they could only finance capital construction with funds designated for other purposes, to the tune of almost 300 million yuan over the years. Consequently, forestry enterprises find themselves unable to keep up with simple reproduction and have no choice but to squeeze as much out of resources as possible. In Sichuan's state-owned forests today, there are only 1.29 meters of forest roads per hectare, for a total shortfall of 8,134 kilometers. Housing also falls short by 640,000 square meters, including 440,000 square meters of residential housing, while dilapidated hazardous housing amounts to 235,900 square meters. There are other under-investments causing gaps in production and living facilities. Because of meager investments in capital construction, three road construction offices in the forests in Sichuan are idle and have no money to pay their workers. Some give out half-month wages while others issue only living allowances.

5. The social burden on enterprises is excessively heavy as revealed in these three aspects:

(1) Forestry enterprises in Sichuan hire 38,340 workers in all. If we include the dependents of workers killed on the job, the figure will be 42,340, or 52.56 percent of all 80,557 workers on the payrolls. Two workers must support one retired worker. In the case of old enterprises, one worker must support slightly more than one retired worker. (2) Non-operating expenditures by state-owned forests in Sichuan amounted to 45.41 million yuan in late 1985, 62.5 percent of their profits from sales. In Yaba Prefecture, it was 83 percent. For the province as a whole, each forestry worker contributes on average 563 yuan to non-operating spending. At nine enterprises including Maerkang, the personal burden ranges from 1,015.3 to 1313.7 yuan. (3) In 1985, enterprises spend 6.38 million yuan each year on schools, in addition to spending by public security organs in forests amounted to 2.66 million yuan. Enterprises spend 6.38 million yuan to the public roads agency in road paying an educational surcharge at 1 percent. Enterprises build roads at their own expense and pay 4.5 million yuan to the resource depletion, maintenance fees. They also build power stations as well as contribute to the transportation and energy development fund. Because of resource depletion, surplus laborers in the industry have now increased to 41,557, plus 5,515

young people waiting for jobs. The enterprises cannot provide them with employment. In addition, there are over 40,000 retired people and dependents of workers killed. All these problems are beyond the enterprises.

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AGRICULTURAL TECHNOLOGY FOR XIZANG DISCUSSED

Lhasa XIZANG RIBAO in Chinese 24 Sep 86 p 2

[Article by Funiu [0126 3662]: "Talking About Agricultural Technical Extension Work in Half-Farming, Half-Grazing Areas"]

[Text] Guided in recent years by the ideology that we must rely on S & T to develop agricultural production, agricultural technology extension work in Xizang has achieved encouraging results through the common efforts of vast numbers of officials and ordinary people and the entire body of agricultural S & T personnel. At present, however, this work has developed very unevenly. Agricultural technical extension work remains quite backward in many places. In particular, agricultural technical extension work is virtually non-existent in some half-farming, half-grazing counties at relatively high altitudes. Highland barley yields have for a long time remained at about 250 jin per mu.

In fact, Xizang has what it needs to strengthen agricultural technical extension work in farming-grazing areas and to accelerate the growth of agriculture in these areas. The reason is that the farmland in Xizang's farming-grazing areas is mostly in places where irrigation is available. Gravity irrigation is possible in many of these places, and so "water" need not be a concern. The farming-grazing areas not only have ample resources of manure, they can also use manure collected from sheep herds which are pastured there in the summer and fall. Furthermore, agricultural technical extension work in these areas is generally starting at a low level, so results will be seen quickly. We are not speaking here of relatively difficult technical measures; starting with just a few simple agricultural techniques can also lead to significant results. For example, Changlong and Linga townships in Gamba County, located at about 4,400 meters above sea level, have achieved striking yield increases in recent years by using mechanized deep plowing, urea and diammonia phosphate applications, and other technical measures. In 1985 these two townships planted 3,030 mu and 838 mu, respectively, of highland barley (including small amounts of rape), and per mu yields were 360 jin and 440 jin; these yields were 24 percent and 53 percent higher than the county average. Many households in Linga Township even exceeded 600 jin per mu.

We can see from this that doing agricultural technical extension work well is an essential step in developing agricultural production in farming-grazing

areas. We must therefore stress the spreading and popularization of agricultural science knowledge. Our officials at every level, especially grassroots-level officials below the county level, should take the lead in studying agricultural technology. When relevant departments are training officials, they should offer technical courses in agriculture and animal husbandry, so that the officials learn technology in addition to cultural knowledge and theory. The majority of officials should be able to become experts in agricultural and animal husbandry technology as soon as possible. At the same time, we should do a good job of spreading agricultural technical knowledge to farmers and herders. Every level of Party committee and government should support and supervise agriculture and animal husbandry technical departments as they transmit knowledge of agriculture and animal husbandry to farmers and herders through flexible, varied methods, such as training classes and travelling lectures. Each year a portion of the funds for agriculture and animal husbandry can be used to convert the "material support of agriculture" to the "educational support of agriculture. Each year a number of simple, easily understood booklets in Tibetan should be prepared and printed to explain agriculture and animal husbandry technology to the masses. We should enable and encourage them to study agricultural technology.

We should next establish complete organizations for promoting agricultural technology and create a small but competent staff of agricultural technology officials. In the course of institutional reform, we should perfect each county agricultural technology extension organization and also assign agricultural technology personnel to township governments. We could mobilize a number of agricultural technology personnel who have already left the field to return and help solve the current extraordinary lack of trained people. Every level of concerned departments should truly respect, value, and make proper use of trained people. At the same time, the departments should show concern for the political progress of agricultural technology personnel, show courage in using these people on the job, and give them appropriate care in their everyday life. In this way the trained people need not worry about their home life. They should be allowed to work contentedly, fully reveal their talents, and make their contribution to the building of the "two civilizations" in Xizang. It is very important to stress the dissemination of applicable agricultural technology. On the basis of incorporating traditional experiences, we can do extension work by being sure to first try easy technology, then advance to harder technology; first carry out model demonstrations and then promote the methods over a large area. During this period we can stress the following areas of work.

1. Stress mechanized deep plowing and gradually promote seed-drilling technology. Mechanized deep plowing can make the cultivable layer of soil thicker, promotes the activity of aerobic micro-organisms in the soil, accelerates the decomposition of humus, and thoroughly improves the ability of the soil to provide water, fertilizer, air, heat, and other nutrients to crops. Farm machinery service departments should give greater thought to the masses and actively bring their services to the doors of the masses. Where conditions do not permit machine tillage, the Tibetan plow should be improved or the walking plow should be used to increase the depth of plowing. Use of the drilling technique has the advantages of: improving the access of air and light to crops in the field; benefiting crop photosynthesis; facilitating

field management such as cultivation, weeding, and irrigation; saving seed; and producing seedlings that are evenly spaced and healthy.

2. Purify and rejuvenate highland barley varieties. The short frost-free period at high altitudes limits the growth period for highland barley. It generally does not work to bring in varieties from agriculturally more developed areas at lower altitudes. The principal way to overcome degeneration of highland barley varieties is based on the purification and rejuvenation of local varieties. Just before the highland barley harvest each year, we can mobilize the masses by households or groups of households to select grain heads in the fields. They should select those plants with large heads, full kernels, early maturation, short stalks and lodging resistance, disease resistance, and other good individual characteristics. The next year they plant seed fields with seeds from each head in individual rows or mix the seeds together, and again select the best heads from the best, multiplying them year by year. Counties and townships should also do a good job on model demonstrations and support a number of households specializing in seed or establish seed-specialty villages, gradually expanding the area planted with improved seed and replacing as quickly as possible the degenerating varieties.

3. Pay serious attention to preventing damage from diseases and pests. Areas severely afflicted by smut, streak, stripe rust, and other diseases of highland barley should disinfect seeds by mixing them with chemicals, change the planting time, and take other preventive measures. Agricultural and chemical methods should be integrated to prevent damage to highland barley from aphids, grubs, cutworms, and other pests. Agricultural technology departments should provide good technical guidance and properly purchase and distribute pesticides, tools, etc. They should actively provide services to the masses.

4. Apply fertilizer scientifically. Appropriate amounts of chemical fertilizer can be used, on the condition that full use is made of the abundant farm manure resources and that much high quality farm manure is applied. As for methods of application, farm manure should be the foundation, while urea and other chemical fertilizers are best used as seed manures. Topdressing the chemical fertilizer should be decided according to the condition of the seedlings, and mixed fertilizers with two or three elements should mostly be used. Fertilizer is better applied early than late, and it is best that not too much be applied as topdressing. This will avoid the highland barley growing too spindly and maturing too early, bad consequences which are the opposite of what is desired.

5. Plant highland barley and peas together, so that the soil can make itself more fertile. The masses have long had the custom of planting highland barley and peas together. The masses will readily accept something as long as the good and bad effects are clearly explained. The interplanting of highland barley and peas should primarily be done in fields which cannot be left fallow. This allows full use of the nitrogen-fixation of root nodule bacteria on leguminous plants. It increases soil fertility, allowing us to reach the goal of increased yields.

AGRICULTURE

YUNNAN CATTLE PRODUCTION DEVELOPMENT URGED

Kunming YUNNAN RIBAO in Chinese 17 Oct 86 p 3

[Article by Feng Min [7458 2404]: "Fully Use Southern Yunnan's Natural Advantages to Develop Commodity Cattle Production"]

[Text] Yunnan is very well suited to raising stock on grasslands. According to survey statistics, Yunnan has about 200 million mu of grass-covered mountains. This includes central and northern regions (except the high mountain areas in northwest Yunnan), where the population density is high, grazing is very intensive, and the number of stock being raised has already exceeded the natural capacity of the pastures. Future development should be in the direction of planting far more grass and trees, adjusting the intensity of grazing, and working hard at improving the livestock's productivity and slaughter rate. However, few livestock are being raised in southern Yunnan, where the climate is warm, rainfall is ample, the land is fertile, and there is much land for few people (the population density is only half the provincial average). Except for the level areas and gentle slopes near villages, on which tropical and semitropical cash crops can be grown, the vast stretches of grass-covered mountains should become bases for commodity cattle production. In southern Yunnan there are about 70 million mu of naturally grass-covered mountains which are suited to developing commodity cattle production. The characteristics of these mountains are that forage grass grows back very well, grass output is high, most areas are green all year round, and there are still large stretches of grass-covered mountains which have not been fully utilized. Funing County, for example, has 3.56 million mu of grass-covered mountains. According to preliminary calculations, each year more than 30,000 additional commodity beef cattle could be raised and slaughtered, besides those currently being raised.

The advantage of using the southern areas to develop commodity beef production is that we can practice modernized livestock raising, with the emphasis on grazing. Using this method to raise cattle requires little investment, costs are low, the commodity rate is high, and economic results are good. Experiments done by the provincial beef cattle research center prove that the annual per capita income can exceed 15,000 yuan, and that we can take full advantage of the excellent natural conditions in southern Yunnan to expand spring fattening of beef cattle. Throughout China, spring livestock are generally thin and yield little meat. More livestock is slaughtered in the

fall, but the price tends to be lower. But southern Yunnan could produce large numbers of spring beef cattle, as long as there is proper management. On the Hong Kong market, the selling price for such beef cattle is twice that of fall beef cattle.

Plans for developing commodity cattle production should focus on beef cattle, grazing, and using naturally grass-covered mountains. Since the nutritional requirements of beef cattle are less than for dairy cattle, they can use forage grass more efficiently. It will not be necessary to grow forage, at least it will not be necessary to grow large quantities of high-quality feed or to buy high-priced feed. The cattle can be grazed throughout the year, so building pens and sheds is unnecessary, thus greatly reducing capital construction investment and production costs. The southern part of Yunnan has a warm climate, so that forage grass can grow lushly for 8 to 10 months of the year. To take full advantage of the naturally grass-covered mountains and develop cattle production, all that is necessary is to provide small investments. With small inputs, quite profitable economic results can be attained. But the use of natural resources must be reasonable; we cannot blindly pursue high yield through predatory use of resources. We should carry out systematic scientific experiments so that we can raise livestock scientifically, determining the number of livestock to be grazed according to the pasture production forces. Setting up commodity cattle ranches which specialize in grazing is something for which grassland animal husbandry in Yunnan is very well suited, and it is also one of the development trends in the modernization of Chinese cattle raising.

As for methods, we should establish small artificial pastures which will guarantee the nutritional needs of livestock in the winter and spring; or we can choose low-lying, moist grasslands which remain green throughout the year for use as winter and spring pastures. This will make it easier to fatten beef cattle in the spring. In spring, when the price is highest, we should strive to sell high-quality beef cattle and supply the export market. At the same time, we could also plant additional leguminous forage crops in natural pastures to solve the problems of poor nutrition, lowered productivity, and reduced weight, caused by the lack of protein in winter and spring for pregnant cows, nursing cows, and weaned calves. Individual places afflicted by a long dry period could also supplement the grazing with protein concentrates. The above methods should be applied flexibly according to whatever is most profitable under local conditions.

The economic results are very high for range cattle production which is scientifically managed. According to calculations based on experiments performed by the provincial beef cattle and forage grass research center, each cattle ranch can set up from two or three to several dozen cattle-raising stations. Each station would be assigned two or three people, who would raise 500 to 600 cattle, and annually send out for slaughter 120 to 200. On the average, the annual output value per capita would be more than 10,000 to 20,000 yuan. Each 100 mu of pasture could annually produce at least 800 jin of beef (the provincial beef cattle research center produces 1,334 jin of beef per 100 mu). Developing commodity beef production in the tropical and semitropical areas of southern Yunnan thus makes full use of Yunnan's natural resources.

We are searching for ways to modernize animal husbandry which "require small investments but have good results" and for important steps in the quadrupling of Yunnan's share of the national economy. We recommend that concerned departments organize their forces to make appropriate tests.

12919

CSO: 4007/63

AGRICULTURE

BRIEFS

XINJIANG HELPS RURAL HOUSEHOLDS—Urumqi, 6 Feb (XINHUA)—According to recent surveys, last year 40,000 rural households in the Xinjiang Uygur Autonomous Region stepped over the state designated poverty line. Last year the regional government allocated 340 million yuan (U.S.\$91.8 million) in special aid to spread new technology and increase investments in farming and animal husbandry in three prefectures in the southern part of the region, where poverty-level households are concentrated. As a result of the funding, the three prefectures increased grain production by 100,000 tons over 1985, and cotton harvests also increased by a big margin. Xinjiang has one million rural households and many of its farmers and herdsmen have turned to other sideline work such as farm produce processing, and transportation and mining, to greatly increase their income. Currently the region is assisting the remaining 12 percent of its households still living below the poverty line to raise their standard of living. [Text] [Beijing XINHUA in English 0126 GMT 6 Feb 87] /9604

HUNAN BEST RAMIE PRODUCER—Beijing, 4 Feb (XINHUA)—Central China's Hunan Province ranked first in the world in ramie production last year, according to INTERNATIONAL BUSINESS. One of China's major ramie producers, the province harvested 65,000 tons of the fiber, used in the production of linen and other textiles, and earned U.S.\$200 million from exports. The paper attributed the successful harvest to efforts by the provincial government to encourage peasants in producing goods in demand on the international market. Hunan expanded areas cultivating ramie from 9,067 hectares in 1984 to 82,667 hectares last year. Output jumped from 14,000 tons in 1984 to 65,000 tons last year, making up one-third of the world's total. According to the report, Hunan has plans to expand its ramie cultivating areas again this year. "The increase in ramie production has boosted the linen textile industry," the paper said, adding Hunan has a ramie production capacity of 87,000 spindles, with many of its products now exported to Hong Kong, Japan and the United States. [Text] [Beijing XINHUA in English 0817 GMT 4 Feb 87] /9604

JILIN 'MAJOR GRAIN PRODUCER'—Changchun, 3 Feb (XINHUA)—Jilin Province in northeast China has become the major grain producer and the largest maize exporter in the country. The province provided 1.2 million tons of grain for other parts of China during the Sixth Five-Year Plan period (1981-85), 1.36 times that in the Fifth Five-Year Period (1976-1980).

Last year, it surpassed the state grain purchasing quota by some 5.5 million tons in spite of devastating floods. It has exported nearly five million tons of maize in the last 2 years, half the nation's total maize exports. [Text] [Beijing XINHUA in English 1252 GMT 3 Feb 87] /9604

JILIN CENTER BOOSTS CORN HARVEST--Changchun, 2 Feb (XINHUA)--In its first year of operation an export production center, built jointly by Jilin Province and the state, boosted corn exports 30 percent, according to local authorities. Handling 13 cities and counties on the central Jilin plain, (?northern) China, the center exported 2.5 million tons of corn last year, accounting for 89.3 percent of the provincial total, in spite of flooding and problems with waterlogging. Total grain output in the province was 9.74 million tons, 25 percent more than in 1985. Last year, central and local authorities built a total of 110 stations specializing in [words indistinct] (?biotechnology), [word indistinct] high-quality hybrids and water conservation. Now 90 percent of the two million hectares allotted to grain production are seeded with high-quality hybrid strains, and 13,000 hectares were cultivated using plastic film. New technology, such as soil testing to determine the most effective fertilizer, and the use of pesticides and herbicides also contributed to the good harvest, an official said. [Text] [Beijing XINHUA in English 1326 GMT 2 Feb 87] /9604

EXPERTS NOTE SHANXI WATER SHORTAGE--Beijing, 3 Feb (XINHUA)--North China's Shanxi Province, which provides three-fourths of the country's coal output, is suffering from a water shortage of 500 million to 1.4 billion cubic meters annually, according to today's PEOPLE'S DAILY. Two hundred experts who gathered on the eve of the traditional spring festival to discuss the problem, concluded that the shortage would seriously hinder economic development of the coal base. The region also provides much of the electricity to the capital city of Beijing and its neighboring industrial city of Tianjin. They found that Shanxi's surface flow in the eighties was cut by one-third when compared with the sixties. The underground water table has plummeted, and 70 percent of the big and medium-sized reservoirs are clogged. Du Runsheng, director of the Rural Policy Research Office of the Communist Party Central Committee's secretariat, pointed out in an article that in north China as a whole, water resources average less than 800 cubic meters per person, only one-third of the national average. He called people's attention to the waste of water resources, and said that a production system using less water should be encouraged. This involved cutting those projects that use large amounts of water, water-saving in agriculture and scientific methods of water utilization. He called for reforms in water conservation to put economic efficiency in the forefront. Qian Zhengying, minister of water resources and electric power, called for strict economic, technical and penalty measures to encourage water-saving and pollution prevention. [Text] [Beijing XINHUA in English 0630 GMT 3 Feb 87] /9604

HEILONGJIANG DAIRY INDUSTRY REPORT—Harbin, 31 Jan (XINHUA)--The number of dairy cows in China's northernmost province of Heilongjiang has reached 312,000, according to local officials. Annual average increase has been recorded at 22.4 percent over the past 8 years, they said. More than 70 cities and counties in the province raise milk cows now. The province only raised milk cows in cities along railways in the past. The provincial government has encouraged the dairy industry since 1979 and allocated funds and provided technology, better breeds and epidemic prevention services. There are now 110 dairy products factories in the province as against some 30 in the past. They process 2,000 tons of milk a day. [Text] [Beijing XINHUA in English 0159 GMT 31 Jan 87] /9604

CSO: 4020/140

CONSTRUCTION

MINISTER URGES REDUCTION IN CONSTRUCTION INVESTMENT

Shanghai WEN HUI BAO in Chinese 22 Jan 87 p 1

[Article by correspondent Chen Yun [7115 5366]: "Wang Bingqian [3769 4426 0051] Says Bank Is Faced with Urgent Task of Reducing Capital Construction to a Level Consistent with National Strength"]

[Text] This year's urgent task is to reduce investments in capital construction to a level consistent with China's capacity. Wang Bingqian, State Councillor and Minister of Finance, said today at a nation-wide working conference of the People's Construction Bank that for this year and next, the bank will continue to control investment in construction, redistribute investments, guarantee major projects, and seek better returns on investments.

Wang Bingqian said that over the past year, the bank has successfully controlled the scale and redistributed investments, as evidenced by a decline since 1985 in the growth rate of state fixed capital investments from 41.8 percent to 15.5 percent; an increase in energy investments from 20.5 percent to 22.2 percent, and a drop in non-productive investments from 43 percent to 39.5 percent. However, An overly large scale of investment, disconnected investments, and insufficient investment in key projects remain glaring problems at present.

Wang Bingqian therefore requested that the People's Construction Bank concentrate on three things this year. First, it must keep the fixed capital construction investments it manages to within the scale permitted by the state, and must not overspend, whether for capital construction or for renovation or transformation. The bank must refuse to allocate or lend funds to projects outside of those planned. Second, it must properly manage construction investment the bank engaged in on its own. It must supervise and allocate funds for all such investment and be alert in checking up on how self-raised capital funds are utilized. Third, it must stress the practicability of investments and lend to units unable to recognize their full potential because they lack investment as well as to help them balance income and outlays.

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CSO: 4006/338

CONSTRUCTION

SHANGHAI ENSURES KEY URBAN CONSTRUCTION PROJECTS

HK271415 Hong Kong ZHONGGUO XINWEN SHE in Chinese 0217 GMT 26 Feb 87

[Text] Shanghai, 26 February (ZHONGGUO XINWEN SHE)--The Shanghai Municipal Government has recently decided to ensure the construction of a number of municipal infrastructure projects despite a cut by 20 percent, as compared with last year, of investment in capital construction using local funds.

These projects are: The new Shanghai railway station for passengers, the project for leading water from the upper reaches of Huangpu Jiang, the second Huangpu Jiang cross-river tunnel, the first phase of the Pudong town-gas plant, the Langao Road flyover, and residential housing estates with a floor space of 4.6 million square meters.

In 1986, the Shanghai Municipality carried out urban construction on an unprecedented scale to transform the urban infrastructure which can hardly meet the requirements of economic development and opening to the outside world. Since China's top leadership took measures to control the scale of investment in fixed assets not long ago, the Shanghai Municipal Government has implemented the policy of "ensuring key projects and cutting ordinary ones." It has decided that in principle, no new urban works project will be arranged for this year, various projects under construction will be checked up one after another and a number of projects will be cancelled or suspended to ensure smooth progress of the construction of key infrastructure projects.

Regarding investment in industry, the Shanghai Municipality will concentrate its funds on projects which have necessary conditions for completion and which will yield good economic results. The Municipality has decided to ensure that seven industrial projects be completed and put into operation this year. They are the Shidongkou Power Plant, the Yaohua-Pilkington Glass Plant that uses the floating method, the Uongwen Paper Mill, the Yimin Beer Plant, the Chuansha Cement Plant, the branch plant of the No. 1 Woolen-Polyester Plant, and the Changqiao Water Works. In addition the municipality has decided to carry out 200 technical transformation projects in industrial enterprises.

To solve the problem of shortage of funds for construction, the Shanghai Municipality has decided to adopt various measures to raise funds, including the collection of charges for water drainage, increasing rents for non-residential buildings, raising the original values of fixed assets, increasing surcharges for crossing a river or tunnel or boarding a ferry, collecting surcharges for hotel accommodation, and raising the standards for road maintenance. Besides, some foreign capital will also be used.

CONSTRUCTION

GUANGXI CUTS INVESTMENT TO ENSURE KEY PROJECTS

HK040751 Hong Kong ZHONGGUO XINWEN SHE in Chinese 0144 GMT 4 Mar 87

[Text] Nanning, 4 March (ZHONGGUO XINWEN SHE)—As planned, Guangxi will ensure funds for the completion of 19 construction projects including energy, communications, and raw materials during the Sixth 5-Year Plan, in spite of the 30 percent reduction of investment in capital construction for 1987.

These 19 projects include the Qiaobasuo hydropower station on Hong Shui, the Yantan hydropower station, the Fangcheng port, the Nanning-Feihai highway, the Xijiang waterway, the Laibin smelter, the Laibin thermal power plant, and the No. 100 ore body of the tin mine of the Wandanda factory. Seven projects in the Heshan electric plant are nearing completion. In addition, the Guilin Airport expansion project, which has been listed in the Sixth 5-Year Plan, will start this year.

It has been reported that Guangxi's total investment in capital construction this year will amount to 300 million yuan, of which over 70 percent is for industry and agriculture. The rest is for educational, medical, and health undertakings.

To ensure funds for the construction of key projects, the Guangxi Regional Economic Work Conference, held in Nanning several days ago, decided that regional party and government leading organs should take the lead in greatly reducing the investments in nonproductive projects such as office buildings, halls, and museums. Some duplicate construction projects and productive projects whose energy and raw materials cannot be ascertained will also be suspended.

Over the last few years, eager to change their backward features, some departments and localities in Guangxi have carried out many construction projects. A small number of units have been busy with the construction of high-class, deluxe buildings. Some units have made investments in capital construction at will.

As reported, there are 31 antimony smelteries in the entire region, with a smelting capacity of about 20,000 tons. But the region's annual antimony output is only 5,000 tons, one-fourth of the smelting capacity. These antimony smelteries have been listed in the current readjustment program.

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CSO: 4006/439

CONSTRUCTION

YUNNAN MAKES PLANS FOR KEY CONSTRUCTION PROJECTS

HK150257 Kunming Yunnan Provincial Service in Mandarin 2300 GMT 14 Mar 87

[Excerpts] Our reporter has learned from a provincial conference on key projects, which concluded on 13 March, that Yunnan plans to build 37 key construction projects in 1987. The year's investment for key projects will show an increase of about 80 million yuan over last year. Eleven of the projects must be completed or partially completed and put into production this year.

Since last year, in accordance with the plans of the central authorities and the State Council, Yunnan has seriously taken stock of projects under construction and readjusted the orientation for investment in line with the principle of ensuring three kinds of projects and cutting three. The province has concentrated capital to ensure the needs of key construction work.

The 37 key projects arranged for this year include water conservancy, energy, raw materials, and transport projects.

At present the greatest difficulty facing these projects, and especially those planned to be completed and put into production this year, is the lack of construction capital. The provincial conference on key projects decided that, to solve this problem, it is first necessary to resolutely readjust the construction plans and cut the number of projects. Second, it is necessary to raise capital and issue bonds. Extra budgetary funds should be used for key construction projects. Third, efforts should be made to get loans from the banks.

To do a good job in this work, it is necessary to unify thinking from top to bottom and work in concert to overcome the difficulties, to ensure the smooth completion of this year's key construction tasks.

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CSO: 4006/439

CONSTRUCTION

BRIEFS

CAPITAL CONSTRUCTION INVESTMENT CUT—Guangdong is taking steps to reduce capital construction investment. Apart from cutting it to the level stipulated by the state, this year the province is also cutting back capital construction investment by 70 million yuan in the provincial budget expenditure and local self-raised capital. Last year, the province took effective measures to compress the overheated atmosphere in construction work, and cut investment by nearly 3.5 billion yuan. This year the province will make a further readjustment and reduction of the scale of capital construction, to ensure construction in energy, transport, and water conservancy. [Text] [Guangzhou Guangzhou Provincial Service in Mandarin 0400 GMT 27 Feb 87 HK] /12913

SHENZHEN TO BUILD ENTERPRISES—Shenzhen, 24 February (ZHONGGUO XINWEN SHE)—The construction of 11 large and medium-sized enterprises will start or be completed in Shenzhen this year. Eight of them are joint ventures with Chinese and foreign capital and one is foreign-funded. These enterprises are a glass plant using the floating method, the Shajiao Power Plant (plant B), the Fengsheng Dyeing and Printing Plant, a laser television set plant, a cigarette plant, the Huizhong Polyester Filament Plant, the China-Canada-Japan Aluminum Products Plant, a color kinescope plant, a glass bottle plant, and an oil refinery. The first six will be completed and put into operation this year. When these enterprises are put into operation, they will increase Shenzhen's annual industrial output value by more than 2.9 billion yuan. Some of them will promote the development of other industrial projects in Shenzhen. For example, after the foreign-funded oil refinery is completed and put into operation, it will provide byproducts such as alkene and airline in addition to a large quantity of LPG. These byproducts are conducive to the development of the textile and light industries. When the Shajiao Power Plant (plant B) is completed and put into operation in June this year, it will solve the problem of power shortage in Shenzhen. [Report: "Shenzhen To Build 11 Large and Medium-Sized Enterprises This Year"] [Text] [Hong Kong ZHONGGUO XINWEN SHE in Chinese 0231 GMT 24 Feb 87 HK] /12913

URBAN CONSTRUCTION WORK CONFERENCE—A provincial conference on urban construction work concluded on 23 February. At the conference the delegates held heated discussions on draft suggestions of the provincial government on several problems concerning improvement of urban construction and put forth valuable proposals. Vice Governor Gu Jinchi delivered a summation speech at the conference. He said: Our basic aim is to ensure continuous and steady

development of urban construction. Curbing excessive economic development does not mean that we stop all urban construction. Urban construction is an important part of the national economy. We must correctly handle the relationship between economic development and urban construction so that the two can develop steadily and in a coordinated way. In developing urban construction, we must make overall planning and unified arrangements, stress priority projects, and do everything according to our own abilities. We must adhere to careful calculation and strict budgeting, spend less money, and do more things. [Text] [Chengdu Sichuan Provincial Service in Mandarin 2300 GMT 24 Feb 87 HK] /12913

CSO: 4006/439

TRANSPORTATION

BRIEFS

AIRLINE BRANCH OFFICE OPENS—China United Airlines, the first airlines company established by enterprises in China, opened a branch office in the Anshan Iron and Steel Company in Anshan City on 26 February. A ribbon-cutting ceremony for the first flight was held on the same day. On the morning of 26 February, the first flight arrived in Anshan City from Beijing Municipality. Attending the ribbon-cutting ceremony were leading comrades from the State Planning Commission, the State Economic Commission, China United Airlines, and from the provincial and Anshan City departments concerned. The airlines will offer a round-trip flight on the new air route between the two cities each Tuesday and Friday. [Text] [Shenyang Liaoning Provincial Service in Mandarin 2200 GMT 26 Feb 87 SK] /12913

TWO AIR ROUTES TO OPEN—Wuhan, 27 February (ZHONGGUO XINWEN SHE)—The Hubei Provincial Civil Aviation Bureau will open two new air routes: Wuhan-Hangzhou and Wuhan-Fuzhou, on 16 March and will resume and increase flights on a number of air routes. There are flights of the newly-opened Wuhan-Hangzhou and Wuhan-Fuzhou non-stop air lines respectively on Monday and Friday and on Monday, Wednesday, and Friday. There are flights of the restored Wuhan-Shenyang and Wuhan-Guilin air lines respectively on Thursday and Sunday and on Tuesday, Thursday, and Saturday. The number of flights has been increased on the Wuhan-Nanchang, Wuhan-Chongqing, and Wuhan-Guangzhou air routes. After restoring and opening air lines, the Hubei Civil Aviation Bureau will increase the number of spaces for domestic and foreign passengers from 4,100 to 5,100 each week. The passenger capacity of Wuchang's Nanhui Airport will reach 250,000 people this year, 37 percent over that of last year. [Report: "Hubei Civil Aviation Bureau Will Open Two New Air Routes: Wuhan-Hangzhou, and Wuhan-Fuzhou"] [Text] [Hong Kong ZHONGGUO XINWEN SHE in Chinese 0325 GMT 27 Feb 87 HK] /12913

NORTHERN XINJIANG RAILWAY PROJECT—Urumqi, 4 March (ZHONGGUO XINWEN SHE)—The track laying work on the Northern Xinjiang railway, a main line linking Urumqi and Alatau Shankou on the western border, will be extended to Usu by this year. At present, the No. 1 Survey and Design Institute under the Ministry of Railways is undertaking the design work for resuming the construction of the last section of the Northern Xinjiang Railway—the Usu-Alatau Shankou section. The construction of this section will be started next year. The construction of the Northern Xinjiang railway, with a total length of 470 kilometers, was launched into full swing in 1958. The project was suspended in 1961. Then, in May 1985, the construction of the railway was resumed, jointly financed by

the Ministry of Railways and Xinjiang Uygur Autonomous Region. The track laying work from Urumqi to Shihezi was completed by October last year. This railway, when completed, will be linked with the Lanzhou-Xinjiang railway and the Lanzhou-Lianyungang railway. The three railways will then form a main artery running across China from east to west and will link up with the railway network of the Soviet Union. Therefore, this railway will play an important role in the development of the economy of Xinjiang and the promotion of China's trade with the Soviet Union and Eastern Europe. [Report: "China Steps up Building of Northern Xinjiang Railway"—ZHONGGUO XINWEN SHE headline] [Text] [Hong Kong ZHONGGUO XINWEN SHE in Chinese 0329 GMT 4 Mar 87 HK/ 12913]

QINGHAI ROAD CONSTRUCTION—The province achieved new results in road construction last year. It built some 256 km of new roads and revamped some 339 km. The total length of the province's roads is over 16,000 km. [Summary] [Xining Qinghai Provincial Service in Mandarin 2300 GMT 28 Feb 87 HK] /12913

ZHEJIANG AIR SERVICE—The Hangzhou (Feida) Air Service Company in Zhejiang Province will open a new air route from Hangzhou to Foshan City, Guangdong Province, beginning 21 March. According to the present schedule, there will be a round-trip flight every Saturday. More flights will be added if need arises. This is the third route operated by the above-mentioned company. The other two routes are from Hangzhou to Beijing and from Hangzhou to Shenzhen. [Summary] [Hangzhou Zhejiang Provincial Service in Mandarin 1000 GMT 20 Mar 87 OW] /12913

CSO: 4006/439

PRC MEDIA ON FOREIGN ECONOMIES

TUVALU REJECTS SOVIET FISHERIES OFFER

OW261144 Beijing XINHUA in English 1049 GMT 26 Feb 87

[Text] Canberra, 26 Feb (XINHUA)—Tomasia Puapua, prime minister of Tuvalu, a South Pacific nation to the north of Fiji, has rejected a Soviet fisheries offer worth about one million U.S. dollars a year, the national daily THE AUSTRALIAN reported today.

Puapua and his wife are now visiting Australia at the invitation of Prime Minister Robert Hawke.

The paper quoted Puapua as saying, "In a small community that is a great danger, when they (Soviets) come ashore, they can easily make friends. That starts a chain of things and this is particularly dangerous in small communities."

"I thought there are many ways for them to come ashore on the islands without the government knowing." "You can't refuse landing, such as if they have a sick patient on board," Puapua said.

The Tuvalu prime minister is reported to agree to Australian Foreign Minister Bill Hayden's claim that small nations were not able effectively to monitor Soviet activities, such as placing agents, dropping sonar equipment to detect the passage of military vessels.

Tuvalu, Puapua stressed, has fish as its significant natural resource. It regards the conclusion of a multilateral 5-year fisheries agreement between the United States and the 16 member states of the South Pacific Forum Fisheries Agency with Tuvalu included, last October, as an important achievement. The agreement is worth U.S.\$12 million a year, of which Tuvalu will earn about one million.

The Soviet Union signed last month a 12-month fishing agreement worth U.S.\$1.5 million in annual royalties with the South Pacific island country of Vanuatu, to the west of Fiji. Before this, Moscow signed a fishing deal with Kiribati, another member of the South Pacific forum.

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CSO: 4020/139

PRC MEDIA ON FOREIGN ECONOMIES

ANALYSIS OF DEVELOPING 'COUNTRIES' DEBT ISSUE

OW050800 Beijing XINHUA in English 0735 GMT 5 Mar 87

[News analysis: Debt Problem, a Global Explosive (by Zhao Dahua)—XINHUA headline]

[Text] Beijing, 5 Mar (XINHUA)—Brazil's suspension late last month of interest payments on its debt, a move supported by fellow debtor nations, is a warning that the debt problem of developing countries remains a threat to global peace and development.

It is of critical importance for both the Third World and industrial regions to seek a long-term development strategy for debtor countries.

The debt problem is more explosive than it appears: by the end of 1986, the Third World debt had reached one trillion U.S. dollars. However, the international financial community, stunned by Brazil's move, is obviously little prepared for a debt crisis reoccurrence. To seek an effective solution, it is necessary for all governments to be aware of the extent of the problem.

The astronomical figure, still on the increase, can be attributed to several things.

Many Third World debtor countries, including the largest in Latin America—Mexico, Brazil and Argentina—depend in part on borrowing new loans to make interest payments, which outpaces new borrowings. In order to maintain people's living standards and the economic expansion, debtor countries usually pay off the debt with their money earned in exports. The continuing radical slump in prices of petroleum and farming products on the world market naturally weakens their debt repayment capability.

Meanwhile, the debt is swelling due to the strengthening of the Japanese and European currencies, which inflated the debt total in dollar terms. What is more, debtor countries found the Baker plan, an initiative forwarded by U.S. Treasury Secretary James Baker in September 1985, unfeasible. The Baker plan called on creditors to make more loans to debtor countries on the condition that these countries would readjust economic policies,

implementing, for example, austerity measures that would more effectively use foreign loans. In the case of Brazil, the government failed to readjust the country's economic structure before fueling increases in individual consumption and wages.

The debt dilemma proves to be a source for a host of social, political as well as regional and international problems.

From the Rio Grande to the Drake passage, almost all the countries on the South American continent are in a process of povertization. A United Nations report calls the 10 years between 1977 and 1987 "a lost decade" for Latin America. In a sense, the loans were provided not so much to improve the people's lives and ensure a steady economic development as to help the government to tide over difficulties.

And austerity policies have not defused the debt bomb. Instead, they have lowered people's living standards, given rise to the shortage of goods and high inflation. The real income of Latin America has dropped back to the 1977 level. In Mexico, the average wage has decreased by 45 percent in the past 3 years.

The debt problem strikingly adds to the problems of overpopulation, civil war, low levels of production and culture, political corruption and outflow of funds, that are all plaguing the land. Social instability, caused by poverty and inequality, would lead to more intervention, even direct conflicts between the United States and the Soviet Union.

The situation in Africa is no less disappointing. The countries south of the Sahara have a debt totalling U.S.\$70 billion. Although Africa's total debt is less than that of Brazil alone, Africa feels the heavy burden. Because Africa applies most of its loans to importing grain and other necessities, not to investment in basic construction, it frequently disables itself in debt repayments.

In the past decade and more, the African economy has gone downhill as a result of a population explosion, rise in inflation rates and financial deficits. Since 1974, Africa's per capita output value declined one percent every year. Some countries cannot but seek new short-term loans in order to offset deficits.

Since 1975, 22 countries south of the Sahara have signed 87 agreements on rescheduling the due debt exceeding U.S.\$12 billion. In a single year now, the interests Africa owes to creditors total U.S.\$4.2 billion. The debt burden, interwoven with the problems of famine, population, ecology, refugees, is thwarting the economic development of the poor African continent.

With so many countries suffering from the debt problem, the whole world, including industrial countries, cannot expect a healthy and lasting economic development. A fundamental and long-term strategy for a country and a region must be outlined by the debtor countries in close cooperation with their creditor countries and banks.

To improve the situation, it is imperative for the Third World to continue their policy of active economic readjustment and all other vital reforms. The proceeding point must be to lay a solid foundation for a debtor country's long-term development and debt repayment should only come after decent economic development.

For this purpose, understanding and magnanimity through sincere negotiations are needed to prevent any potential confrontation between the two sides.

As the world is becoming an interdependent global village, a nation's economy cannot be expected to expand without favorable international circumstances. Industrial countries can take on greater responsibility in helping bring the Third World debtor countries onto the road toward prosperity. Creditors can agree to allow more time for debtors to pay both principal and interest. New loans with less strict conditions and lower interest rates are also urged.

What is more, industrial countries should take the lead in fighting trade protectionism, transferring more technology, improving ways of exports for developing countries and helping curb the outflow of funds from debtor countries.

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